Events of Current Interest in Refrigeration

Thousands of Cleveland housewives attended the international cooking school sponsored by Cushman, Inc., General Electric distributor. Leading chefs of the city prepared favorite dishes of their home nations at the five-day school which closed with a children's party.

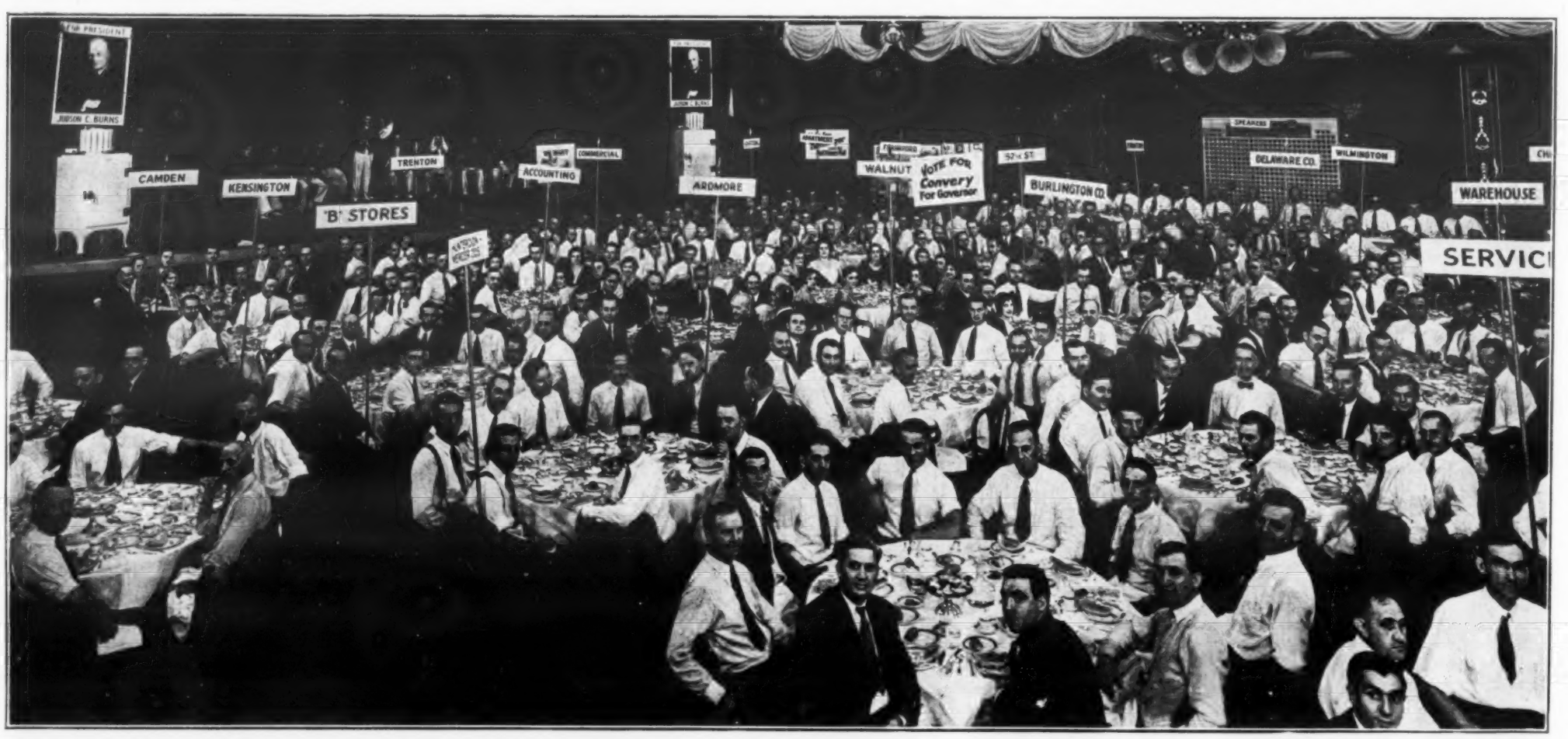
Attired in accordance with the number of sales they had made during a sales contest (each man started from scratch) these Westinghouse salesmen attended a celebration banquet. Prizes of clothing were awarded winning salesmen at the banquet.

Gov. Doyle E. Carlton of Florida (left) recently paid a visit to George S. Patterson, G. E. distributor. J. L. Kelly, representative, accompanied the governor.

'Good Morning!'

Grace Ellis, General Electric hostess, will go on the air six mornings every week in the new G. E. $1,000,000 radio program which will feature electric refrigeration in many of the morning broadcasts.

W. J. Seroy (left), Pacific Coast representative for Mayflower electric refrigerators, helps Garratt Arnold deliver a new unit during a rush sales period.



"Burns for President of Refrigerania" was the sales slogan adopted by members of the Judson C. Burns selling organization at a banquet which opened the General Electric fall sales drive, during which members of the selling organization will seek political offices in the nation of Refrigerania.

Written to be Read On Arrival

Merchandising Section

In Two Parts Part One

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

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TEN CENTS PER COPY
TWO DOLLARS PER YEAR

EXPANSION PLANNED BY ELECTROLUX NORGE, TRUPAR FOR 1932

MAYFLOWER TO DOUBLE OUTPUT, INCREASE SPACE

Factory Annex Planned; Two New Household Models Announced

By George F. Taubeneck

DAYTON—Plans for the addition of 30,000 sq. ft. of factory space to take care of the 1932 production schedule—which is set at double that of 1931—were announced by H. J. Hunt, president of the Trupar Mfg. Co., at a conference of Mayflower refrigeration jobbers here Thursday and Friday, Oct. 16 and 17.

Mayflower sales in 1931 have tripled those of 1930, it was declared at the conference. Sales in 1930 doubled those of 1929.

Two new household models were unveiled at the conference. These refrigerators, named the "Colonial" models, are designed especially for sale in department stores.

L. G. Lindsay, vice president in charge of sales, was the chief speaker at the opening session Thursday.

Outlining sales policies for 1932, he decried the "come-and-get-it" method of selling electric refrigerators, and urged that jobbers back dealers and salesmen with effective advertising and promotional activity.

Mr. Lindsay sees a trend toward the establishment of special electric refrigeration departments, with trained sales forces, in large retail organizations, such as department stores.

Following a discussion of the plans and ideas presented by Mr. Lindsay, the jobbers were taken on an automobile tour of Dayton and suburbs.

Thursday night the visiting Mayflower jobbers were entertained in the auditorium at the Trupar factory by naive Jimmy Trimble, "the one man circus," Martha Gossman, unabashed songstress, Alice Kellerman (whose collapsible torso reminded the writer, old graybeard that he is, of *Annette* Kellerman's body-bending talents), and a memory marvel billed as "Paxton—the man who never forgets."

This latter young man has the census figures memorized backward, forward,

(*Concluded on Page 2, Column 5*)

WISCONSIN SALES FIRM HANDLES STARR FREEZE

MILWAUKEE, Wis.—The Interstate Sales Co., located here, will distribute Starr Freeze refrigerators in the State of Wisconsin, according to announcements made at the recent Wisconsin Radio Show, which was held at the Hotel Shrader.

The Starr Freeze meetings were held under the direction of B. G. Olson, western representative of the Starr Co., and a sales talk was delivered by T. E. Flack, director of retail sales for the Starr Co.

Members of the Interstate Sales Co. introduced at the meeting were R. B. Ludlow, sales manager of refrigeration distribution. Harold Reist, P. T. Roach, and Clarence Seibert, detail men in the refrigeration division.

BIECHLER MADE MEMBER OF 'COMMITTEE OF 100'

DAYTON, Ohio—E. G. Biechler, president of the Frigidaire Corp., has been named as one of the city of Dayton's "Committee of 100" to back up President Herbert Hoover's plan for economic relief and national stabilization.

Mr. Biechler was drafted for work on the executive body of the committee by Chairman Frank M. Tait, president of the Dayton Power and Light Co., at the luncheon meeting during which the committee was formed from the group of prominent business and industrial leaders who had gathered to offer their services.

Quinn Will Address Salesmen Over NBC Chain

CLEVELAND, Ohio—The 54 radio stations which form the basis of the National Broadcasting Company's Red network, and over which the General Electric Company's new million dollar program is being broadcast, will be utilized Friday noon, E. S. T., Oct. 23, when T. K. Quinn, vice president of the General Electric Co., will broadcast a sales message to more than 10,000 General Electric refrigerator salesmen in all parts of the country.

This broadcast, said to be the largest ever used for such a purpose in the history of American broadcasting, will mark the launching of a new sales plan which G. E. officials expect will stimulate fall and winter sales to a great extent.

The plan, which will be discussed at considerable length by Mr. Quinn, deals with canvassing and the "selling" of evening appointments, the time when

(*Concluded on Page 2, Column 3*)

KELVINATOR STARTS $50,000 SALES DRIVE

DETROIT—Announcement of a $50,000 contest for salesmen and a Christmas selling plan has been made by Kelvinator Sales Corp. through the release of a booklet this week presenting the details of the campaign.

Known as the "Silver Seal Campaign," the Christmas plan went into effect Oct. 19. The sales contest will continue until Dec. 24.

The selling plan includes a special winter budget financing plan which calls for a down payment of $10 before Christmas, payments from $1 to $5 per month up to March 15, and 30 months to pay after March 15.

The leading salesman at the end of the contest will receive a cash prize of $1,000, while 145 other cash prizes ranging from $750 down to $25 will be awarded to the next salesmen in line.

Merchandise prizes which can be used for Christmas presents will be presented in exchange for silver seal certificates.

This sales campaign is built around a silver seal, which is a name-plate that screws on to each electric refrigerator sold between now and Christmas. On the plate will be engraved "To Mother From Dad," or any other presentation line desired by the purchasers.

Tying in with the "Silver Seal Campaign," Kelvinator has released a series of three direct mail pieces, has announced the "Silver Seal" savings plan, and has arranged a special winter budget financing plan.

The savings plan includes a miniature Kelvinator bank in which pros-

(*Concluded on Page 2, Column 2*)

ALASKA CABINET FACTORY BOUGHT BY NORGE CORP.

Distributors Plan Sales At French Lick Sessions

By George F. Taubeneck

FRENCH LICK, Ind.—For the first time in the history of the Norge organization, distributors of Norge electric refrigerators were assembled to confer on plans for the coming year, here, Oct. 12, 13, and 14.

Acting on reports brought in from the field by these jobbers, Norge executives are preparing to do more business in 1932 than they have done this year, and are boosting the 1932 production schedule accordingly.

The Alaska Refrigerator Co. of Muskegon, Mich., which has been making cabinets for Norge refrigerators, has been acquired by the Norge Corp., and will be operated under the direction of Norge production engineers exclusively for the manufacture of Norge cabinets.

The Alaska plant has 400,000 sq. ft. of floor space. Norge engineers believe that they can utilize this space to the extent of getting three times the present production capacity out of the plant.

Compressors will be manufactured in Detroit, as before. Assembly of complete refrigerators will be made in the Alaska plant at Muskegon.

(*Concluded on Page 8, Column 4*)

HOWARD E. BLOOD
Norge president talks with jobbers.

Officials To Speak At Convention of Leonard Men

DETROIT—Sales plans for Leonard electric refrigeration organizations in 1932 will be made at a convention of distributors here, Friday, Oct. 23.

The convention will open at 10 o'clock Friday morning with H. W. Burritt, vice president in charge of sales, giving the address of welcome. G. W. Mason, president, will speak on "The Leonard Convention," and he will be followed by R I. Petrie, sales manager, who will talk on the Leonard line, introduce district sales managers, and explain one year's service.

E. A. Seibert will open the afternoon session and he will be followed by C. M. Armstrong, head of Refrigeration Discount Corp., who will explain the ReDisCo plan.

"Advertising and Merchandising Counsel," is the subject of E. L. Triffit while A. M. Taylor, advertising manager, will speak on "Advertising and Sales Promotion."

Mr. Petrie and Mr. Burritt will close

(*Concluded on Page 2, Column 4*)

THOMAS ALVA EDISON MOURNED BY WORLD

WEST ORANGE, N. J.—Thomas Alva Edison, inventor of the incandescent lighting system and the greatest electric genius the world has ever known, died at his Hilltop estate, here, early Sunday morning, Oct. 18, at the age of 84.

The aged inventor's death followed an illness of several weeks' duration, which had followed upon a sudden collapse Aug. 1. Mr. Edison had never fully regained his health from an attack of pneumonia which he suffered two years ago.

News of the inventor's death almost instantly circled the globe by telephone and telegraph system, part of the industries valued at $15,000,000,000 to which he had contributed major inventions.

Hundreds of government officials, leaders in industry, and foreign dignitaries, as well as thousands of townspeople and citizens passed by his bier in the library of his laboratory, where many of his inventions were created.

Edison considered the inventions that underlie the electric light and power industry the most important of his works.

Gerard Swope, president of General Electric Co., upon receiving the news of Edison's death, said:

"It is difficult to express an appreciation of the significance of Mr. Edison's life and contributions to mankind. His has been a long life full of many inventions and great achievements, not only to his own generation, but to many generations to come."

ELECTROLUX HAS CENTER OF STAGE AT GAS MEETING

Refrigeration Plan Book Distributed at Convention

By John T. Schaefer

ATLANTIC CITY, N. J.—Getting an early start in its campaign to boost sales of Electrolux refrigerators in 1932, Electrolux took the center of the stage at the American Gas Association convention here, Oct. 12 to 16.

In fact, Electrolux took the entire stage of Atlantic City's huge municipal auditorium to show its complete line of gas-fired refrigerators.

The A. G. A. plans to help push sales of Electrolux in 1932 with cooperative refrigeration campaigns.

Toward this end the refrigeration plan books explaining the cooperative campaign plans were distributed from the Electrolux booth.

These plans include sales meetings, prizes for outstanding salesmen, and concentration of selling efforts on known prospects.

Large silver letters spelling Electrolux towered from high above the stage down on the exhibit floor below where all manner of gas appliances—ranges, toasters, warm-air furnaces, unit heaters, industrial gas-burning equipment, and many of the parts, materials, and accessories pertinent to the gas industry were displayed.

Patterned after the Temple of Zeus at Pergamon, the Electrolux display presented some 20 different models ranged in a semi-circle around the stage. Refrigerators from 3 to 20 cu. ft. of food storage capacity were shown, as well as the Electrolux biological cabinets, water cooler, ice cream cabinet, and optical lens cabinet. In the center a fountain played continually for the visitors who sat around in comfortable chairs to talk, smoke, and discuss gas refrigeration.

Attractively attired girls served free ice cream from one of the new four-hole Electrolux ice cream cabinets. About 2,000 people were served ice cream each day of the convention, 3,000 being served the opening night when local

(*Concluded on Page 2, Column 3*)

ENDRESS WILL SUPERVISE ALABAMA STATE SALES

BIRMINGHAM—O. C. Endress has been placed in charge of Frigidaire Corp.'s company owned operations in Alabama, with headquarters in this city. Mr. Endress has been associated with the Frigidaire organization for many years, first as a salesman in Minneapolis, later as a zone manager and more recently as manager of the company's retail operations in Dayton, Ohio.

RUTHENBERG TO ADDRESS DAYTON CONFERENCE

DAYTON, Ohio—Louis Ruthenberg, president of Copeland Products, Inc., will speak before the fourth annual Miami Valley Business Conference to be held in the N. C. R. school house the night of Oct. 29.

An attendance of about 1,000 is expected to hear Mr. Ruthenberg, who will speak on "The Course of Industry in the Present Depression."

SPARKS-WITHINGTON CO. WILL MANUFACTURE REFRIGERATOR

JACKSON, Mich.—The Sparks-Withington Co., manufacturer of automobile horns and radio receiving sets, will begin the manufacture of electric refrigerators by Jan. 1, it was announced today by Capt. William Sparks, president of the company.

Current Sales Activity Discussed, 1932 Plans Made at 2-Day Meeting of Frigidaire Group

DAYTON—Frigidaire's distributing organization heads, for the United States and Canada, devoted two days to a discussion of current sales activity and the formulation of plans for 1932 at their semi-annual meeting held in this city, Oct. 14 and 15.

In the opening meeting, E. G. Biechler, president and general manager, stated that the 1931 sales curve of the electric refrigeration industry has been higher than that of most other American industries and that the outlook for a continuance of good business in this particular field is highly favorable.

In behalf of the manufacturing division, Mr. Biechler thanked the representatives of the field organization for the marked improvement that they had made in forecasting their product requirements, thus making possible better control of factory production.

"As a result of this information it has been possible to maintain factory operations in direct proportion to requirements of the field, thus preventing either overstocking of warehouses or an actual shortage of products in the field," he said.

"Through this policy we have been able to prevent any drastic curtailment in the number of people who look to us for employment."

In keeping with the spirit of the convention slogan, "Cooperation Promoted Success," the distributing organization heads adopted a vigorous sales program for the remainder of the year and approved plans already formulated for 1932.

Those attending the convention were guests of the General Motors Acceptance Corp. at a dinner at the Miami Valley Golf club. Speakers were M. C. Dezendorf and Wade Leach, vice presidents of G. M. A. C., and Mr. Biechler. G. A. Ames of the Frigidaire division of G. M. A. C. was toastmaster.

At the dinner it was announced that G. L. McIver, Jr., of the San Francisco Frigidaire-G. M. A. C. branch had won the grand prize in a sales contest conducted by the finance corporation in September—a trip to New York and Detroit. During this month the corporation conducted a sales campaign on all General Motors products. Mr. McIver was credited with the sale of 58 Frigidaire units. During the contest Frigidaire sales totalling $125,000 were turned in by G. M. A. C. representatives in the United States and Canada.

The second day of the Frigidaire convention was devoted to a general discussion of financial subjects, sales promotion and advertising.

Among those leading convention discussions were J. A. Harlan, R. F. Callaway, S. R. Prugh, D. K. Banker, W. M. Willoughby, R. D. Funkhouser, R. G. Hutchison, G. A. Ames, H. F. Lehman, J. J. Nance, E. D. Doty, B. B. Geyer and Mrs. E. S. Macdonald.

BLINSINGER LEADS G. E. RACE IN PHILADELPHIA

PHILADELPHIA—Howard Blinsinger, apartment house candidate, is leading the field in the race for governor in the state of Burns in the General Electric refrigeration campaign. Carl Morash, commercial manager is running second.

Balsam-Wool
Sealed Slabs

NATIONALLY ACCEPTED
Completely satisfactory Refrigerator Insulation

WOOD CONVERSION COMPANY
Industrial Sales Offices:
CHICAGO, 360 N. MICHIGAN AVE.
New York, 3107 Chanin Bldg;
Detroit, 515 Stephenson Bldg;
San Francisco, 149 California St.

Kelvinator Starts $50,000 Sales Contest

(*Concluded from Page 1, Column 2*)

pects can save down payments until the refrigerator is delivered at Christmas.

Under the finance plan, the prospect may make a down payment of $10 and start regular monthly payments in the spring, with payments up to March 15 from $1 to $5 monthly. After that, the purchaser may have 30 months in which to pay the remaining installments.

The story is told in the "Silver Seal" plan book which was presented to the Kelvinator district managers at a special meeting at the factory, called for the purpose. The district managers took the plan out to their territories and in turn presented it to the distributors and dealers.

A broadside, "The Silver Spade," was sent to Kelvinator salesmen detailing the rules of the contest and revealing the treasure that may be dug up with the spade.

Derby tickets which were not cashed in may be traded for "Silver Seal" certificates.

District Managers

Zone Sales Managers wanted for open territories by a nation-wide organization merchandising Electric Refrigerators, Radio, Temperature Control, Vacuum Cleaners, Incinerators, Water Softeners, Water Heaters, and other items. Men experienced in selling dealers one or more of the above lines preferred. Territory closing rapidly. Straight commission, but with weekly settlement in full on all orders.

Write or Wire

Quality Products Corp.
Dayton, Ohio

ELECTROLUX EXHIBITS AT GAS CONVENTION

(*Concluded from Page 1, Column 5*)

people were invited to inspect the show.

Each night, gas utility men and their wives were entertained at the "Blue Flame Club," a suite of rooms at the Ambassador Hotel where the Monte Carlo atmosphere had been created, and gaming boards provided. Everyone started out the evening with $50,000 in fake money—furnished by Advertising Manager Bill Reynolds, and his associates.

Opportunities for gas refrigeration were among the much-discussed subjects at the convention. N. T. Sellman's paper, presented before the industrial gas section of the association, told about research in that direction. It is reported on page one of the *Engineering Section* of this issue.

QUINN WILL GIVE RADIO ADDRESS TO SALESMEN

(*Concluded from Page 1, Column 2*)

more than 65 per cent of all electric refrigerator sales are made.

Dealers and distributors in all parts of the nation have made arrangements for "radio parties" to be held in their salesrooms for members of their sales organization.

WESTINGHOUSE MODEL PLACED IN CHURCH GUILD

WORCESTER, Mass.—A DWP-180, four-door Westinghouse refrigerator has been installed for the Ladies Guild in the parish house of the First Unitarian Church by the Duncan & Goodell Co., Westinghouse dealer.

Officials To Speak At Convention of Leonard Men

(*Concluded from Page 1, Column 4*)

the afternoon session with short talks on franchises and 1932 plans.

The one-day convention will be closed with a banquet at the Statler hotel at which Douglas Malloch, poet and humorist, will speak on "The Seven Sinners of Business."

Mr. Burritt will be toastmaster; and short talks will be made by Mr. Mason and H. A. Lewis, treasurer. The banquet program will be closed with short talks by three distributors.

New Appointments

DETROIT—R. I. Petrie, sales manager of the Leonard Refrigerator Co., has announced the appointment of three new district managers.

Lee Stratton, formerly sales manager of the Williamson Heater Co., Cincinnati, when that company was distributor for Kelvinator, has been appointed Leonard district manager in Missouri, Kansas and Tennessee, with headquarters at Cincinnati, Ohio.

Gordon Muir, recently advertising and sales promotion manager for Holbrook, Merrill & Stetson, Los Angeles, and, before that, advertising manager of the Nizer Corp., and associated in an executive capacity with the Norge Refrigerator Co., has been appointed Leonard district manager for the Michigan, Ohio, and Indiana territory, with headquarters at Detroit.

Harry E. Brazier, for two years manager of the Los Angeles office of Refrigeration Discount Corp., for three years new business manager of the Commercial Credit Trust Co. of Chicago, and for two years with the Willys Overland Co. at Toronto, Canada, has been appointed Leonard district manager for the Colorado, Wyoming, Utah, and New Mexico territory with headquarters at Denver, Colo.

WATERLOO STORE SECURES G. E. FRANCHISE

WATERLOO, Iowa—The Davidson Co., Sol Algase, manager, has announced that the store has taken over the Black Hawk county franchise for General Electric refrigeration. L. R. Edwards, Inc., was the former dealer.

TRUPAR TELLS PLANS FOR FACTORY GROWTH

(*Concluded from Page 1, Column 1*)

sideways, and telescoped; and can rattle off pages of miscellaneous information, including good telephone numbers, about almost any sizeable city in the country.

W. M. Myers, treasurer and merchandising manager, directed the program Thursday night. He ran in a ringer when he induced Betty Zwick, Trupar telephone girl, to wring some love songs out of a piano.

Friday morning Mr. Myers again took charge of the proceedings, and discussed advertising plans for 1932.

Next year's Mayflower advertising will include a campaign in the *Saturday Evening Post* and women's magazines, newspaper and radio advertising.

Engineer Performs

In the afternoon, F. C. Geiler, vice president in charge of engineering, presented a demonstration, "Scientific Curiosities," in which he caused many lower jaws to drop by melting a bar of "lead" on a cake of ice, and doing other tricks with liquid air.

To conclude the afternoon, the jobbers were escorted out to Wright Air Field, where they watched an air circus and saw the giant dirigible, "Akron."

At the banquet Friday night, President Hunt introduced a number of Dayton public officials and business men, each of whom congratulated the Trupar company on its growth. He also called upon several distributors, and received pledges of loyalty and cooperation.

George F. Taubeneck, editor of ELECTRIC REFRIGERATION NEWS, finished the evening's program with a talk on the future of the refrigeration industry.

Present at Conference

Among those present at the conference were the following representatives of Mayflower jobbers:

W. A. Dean, W. A. Dean, Ltd., Toronto, Ont., Can.; C. R. Kierulff, Kierulff & Ravenscroft, Inc., Los Angeles, Calif.; N. S. Reeves, Wright & Wilhelmy Co., Omaha, Nebr.; L. M. White, Mackenzie, White & Dunsmur, Ltd., Vancouver, B. C.

Oscar Bass, D. E. Russell, Bass & Co., Hopkinsville, Ky.; C. G. Keyes, A. Downs, Keyes Supply Co., Ottawa, Can.; W. O. Warren, H. R. Stover, Warren, Balderston Co., Trenton, N. J.; W. A. Shorb, W. M. Shorb, Field & Shorb Co., Decatur, Ill.

R. H. Kyle, R. H. Kyle Co., Charleston, W. Va.; H. A. Ellis, G. A. Tatem, Philadelphia Distributor, Philadelphia, Pa.; W. A. Shuler, Shuler Supply Co., New Orleans, La.; J. R. McLain, R. Reinhart, M. & M. Co., Cleveland, Ohio; Leo C. May, F. P. May Hdwe. Co., Washington, D. C.

A. K. Dearing, Beck & Gregg Hdwe. Co., Atlanta, Ga.; I. E. Hickey, House-Hasson Hdwe. Co., Knoxville, Tenn.; G. F. Swords, Swords Co., Rockford, Ill.; C. J. Prentiss, S. E. McNeely, Mr. Carrington, Van Camp Hdwe. & Iron Co., Indianapolis, Ind.

E. E. Anderson, Union Supply Co., Burlington, Iowa; B. H. Collier, Inland Supply Co., Danville, Ill.; J. V. Cole, Crane Co., Minneapolis, Minn.; R. P. FitzGerald, Crane Co., St. Paul, Minn.

R. R. Lancaster, H. W. Falls, Richards & Conover Hdwe. Co., Kansas City; M. M. Goldsmith, A. S. Pent, Sam S. Glauber, Inc., New York, N. Y.; C. G. Campbell, Midwestern Distributors, Inc., Denver, Colo.; F. H. Suter, Shadbolt & Boyd Co., Milwaukee, Wis.

H. W. Smith, Pittsburgh Auto Equipment Co., Pittsburgh, Pa.; Mr. McMahon, Huey & Philp Co., Dallas, Tex.; J. B. Mirgon, Haw Hdwe. Co., Ottumwa, Iowa; H. J. Fuchs, E. G. Blumeyer, Fuchs Appliance Co., St. Louis, Mo.

F. W. Swanson, Globe Machinery & Supply Co., Des Moines, Iowa; W. E. Eedy, Mr. Fleming, Wood, Alexander & James, Ltd., Hamilton, Ont.; Mr. Alexander, Sager Electrical Supply Co., Boston, Mass.; H. E. Chaffee, Belcher & Loomis Hdwe. Co., Providence, R. I.; A. P. Daniels, Edwards & Walker, Portland, Me.

J. P. Fell, Aird-Don Co., Troy, N. Y.; L. S. Farnum, Universal Supply Co., Worcester, Mass.; R. E. Egan, Mr. Scribner, Smith Bros. Hdwe. Co., Columbus, Ohio; G. W. Kohlmeyer, W. A. Case & Son Mfg. Co., Buffalo, N. Y.

M. J. Miller, W. A. Case & Son Mfg. Co., Brooklyn, N. Y.; F. C. Waters, W. A. Case & Son Mfg. Co., Syracuse, N. Y.; J. H. Ewald, W. A. Case & Son Mfg. Co., Detroit, Mich.; H. L. Gauthier, W. A. Case & Son Mfg. Co., Scranton, Pa.

W. N. Billings, W. A. Case & Son Mfg. Co., Nashville, Tenn.; C. Kratzman, W. A. Case & Son Mfg. Co., Buffalo, N. Y.; C. H. York, Mr. Mehaffie, York Supply Co., Dayton, Ohio.

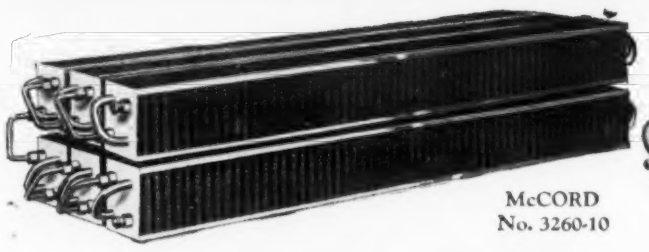
The following Mayflower representatives also attended:

W. J. Seroy, Oakland, Calif.; R. D. Tilley, Seattle, Wash.; B. K. Williamson, Kansas City, Mo.; N. C. Bronson, Minneapolis, Minn.

H. S. Rheiner, Philadelphia, Pa.; R. E. Hunter, Dallas, Tex.; J. R. Tepfer, Ottawa, Kan.; E. A. Walsh, Hamilton, Ont.

W. J. Mundhenk, Hartford, Conn.; C. C. Grandstaff, New York, N. Y.; C. L. Richardson, Washington, D. C.; H. S. Pettengill, Chicago, Ill.

McCORD EVAPORATORS
Establish New Standards in The Refrigerating Industry



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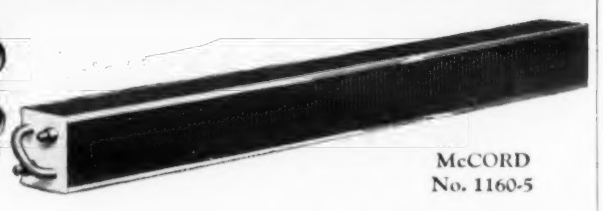

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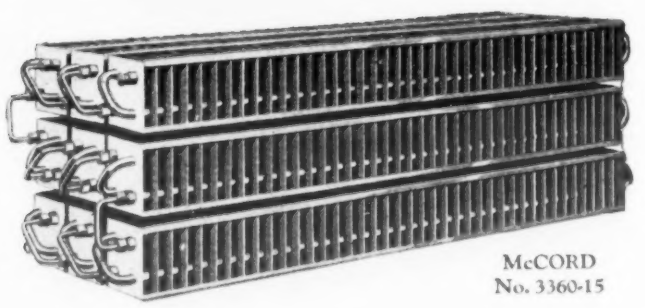

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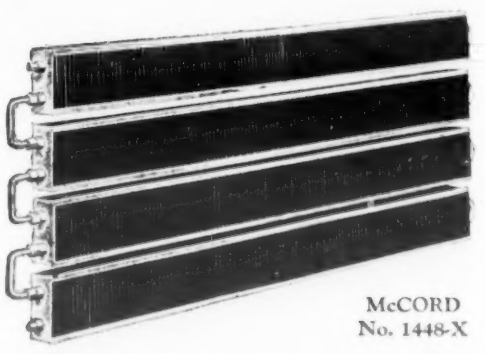


McCORD No. 1448-X

McCORD Copper-Fin Commercial Evaporators were designed to enable you to meet today's competition. Far from being "just another line of evaporators," they actually contribute more toward the perfection of commercial refrigeration than any device introduced in many years.

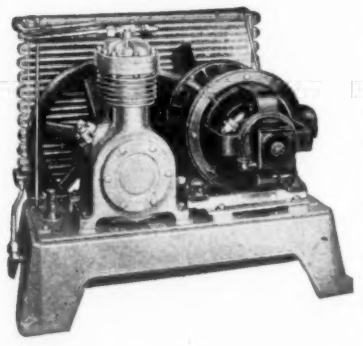
Standardization of sizes makes possible a selection that will take greater advantage of bunker and space requirements—and with the all-copper construction is a definite advantage that enables you to secure better performance. And the use of only 12 sizes in only 3 fin spacings—a total of 36 models—permits a combination of 297 different installations. This standardization also effects a material simplification of your stock inventory and McCord's practice of shipping the job the same day your order is received is ample assurance of quick service.

Because McCord Copper-Fin Evaporators have such dominant advantages in performance, you can obtain the desired results with smaller and less expensive installations than you would recommend if evaporators other than copper were used. Because of the sizes and shapes, you can obtain better performance from a McCord than other copper-fin makes on many installations. And you can gain lower temperatures and lower operating costs with a McCord evaporator of the same size you would recommend if using other than an all-copper unit.

If you have not yet received your copy of the McCord Evaporator Catalog, with its handy table of accurate data on B.t.u. computations, send for it today. And the next time you have a commercial evaporator job, specify McCord. Try McCord service and test a McCord Evaporator in one installation and you will depend on McCord for all your jobs thereafter.

REFRIGERATION ACCESSORIES DEPARTMENT OF **McCORD** RADIATOR & MFG. CO. DETROIT, MICH.

KULAIR
Simplicity, quality, efficiency and capacity unequalled



A size for every use

Methyl Chloride or Sulphur Dioxide

Air or Water Cooled CONDENSING UNITS

95 to 2500 Lbs.

•

The Important Enhancement
of Dealer and Retail customer confidence in Kulair clientele
Allowing Distribution and Sales
UNDER PRIVATE BRANDS
will benefit
your distributing establishment

KULAIR CORPORATION
PHILADELPHIA, PA.

Meet GRACE ELLIS!

Hostess of General Electric's new $1,000,000 *radio program*

Another Powerful Sales Stimulus for General Electric Refrigerators

Beautifully Modern
GENERAL ELECTRIC
Member of a Distinguished Family
GENERAL
Efficiency that a man admires
9 a.m. efficiency with GENERAL ELECTRIC WATER COOLERS
all day long
Over a MILLION
SHELVES
NBC
T. K. Quinn, Vice President of General Electric Company, will speak on the noon program—Friday, October 23rd. Tune in on his message of far-reaching interest and importance to everyone concerned with the selling of electric refrigerators.

MONDAY, October 12th, General Electric launched its great new million dollar radio activity—over a nation-wide network of 54 stations . . . one of the largest hook-ups ever used for commercial purposes!

Every weekday—except Saturday—at noon, eastern standard time, Grace Ellis, General Electric hostess, presents the "G-E Circle," a program which is new, entertaining, different. Internationally prominent women take part. And on Sunday, 5:30 to 6, eastern standard time, Grace Ellis and her "G-E Circle" bring a program of outstanding entertainment . . . great stars of the Metropolitan Opera and concert stage—Lawrence Tibbett, Rosa Ponselle, Lucrecia Bori, Geraldine Farrar, John McCormack—and others, in a vastly different type of radio broadcast.

Designed to directly and definitely help sell more General Electric Refrigerators, these programs reach thousands of prospects right in your territory. Added to powerful advertising and merchandising in magazines, newspapers, outdoor posters, spectacular signs, store and window displays, direct mail, literature, salesmen's training courses, visual presentations and other activities, these radio programs make it still easier to sell the General Electric Refrigerator.

And back of all this intensive, extensive sales promotion is the General Electric All-Steel Refrigerator, with an unparalleled record of performance. An overwhelming public preference, plus the absence of expensive servicing, creates quicker and easier sales for the General Electric . . . and results in greater NET PROFIT for the General Electric Refrigerator Dealer. General Electric Company, Electric Refrigeration Department, Section DF-102, Hanna Building, Cleveland, Ohio.

Tune in every week day (except Saturday) at noon E. S. T., and Sunday at 5:30 E. S. T.

WEAF, New York
WEEI, Boston
WTIC, Hartford
WJAR, Providence
WTAG, Worcester
WCSH, Portland, Me.
WLIT, Philadelphia
WFBR, Baltimore
WRC, Washington
WGY, Schenectady
WBEN, Buffalo
WCAE, Pittsburgh
WTAM, Cleveland
WWJ, Detroit
WSAI, Cincinnati
WENR, Chicago
KSD, St. Louis
WOC, Davenport
WHO, Des Moines
WOW, Omaha
WDAF, Kansas City
KSTP, Minneapolis St. Paul
WTMJ, Milwaukee
WEBC, Duluth, Superior
WDAY, Fargo
KFYR, Bismark
WIBA, Madison
WRVA, Richmond
WPTF, Raleigh
WJAX, Jacksonville
WELA, WSUN, Tampa, Clearwater
WIOD, Miami
WHAS, Louisville
WSM, Nashville
WMC, Memphis
WSB, Atlanta
WAPI, Birmingham
WJDX, Jackson, Miss.
WSMB, New Orleans
KVOO, Tulsa
WKY, Okla. City
KTHS, Hot Springs
WFAA, Dallas
KPRC, Houston
WOAI, San Antonio
KOA, Denver
KSL, Salt Lake City
KGO, San Francisco
KFI, Los Angeles
KFSD, San Diego
KTAR, Phoenix
KGW, Portland, Oregon
KOMO, Seattle
KHQ, Spokane

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR

DOMESTIC, APARTMENT HOUSE AND COMMERCIAL REFRIGERATORS · ELECTRIC WATER COOLERS

Barnes Explains Cooperative Plan of Merchandising Used in New Orleans

ATLANTIC CITY, N. J.—Methods of securing cooperation between dealers of electric and gas refrigeration and ice manufacturers and public utilities in merchandising products were explained by J. C. Barnes, New Orleans Public Service, Inc., New Orleans, in an address to the publicity and advertising section of the American Gas Association, Monday afternoon, Oct. 12.

Mr. Barnes explained in detail the system used by the New Orleans utility whereby cooperation between the groups was secured through the formation of the Food Preservation Association and a selling agreement.

Sell All Makes

"The agreement reached was that we were not to stock any refrigerator, but were to sell all makes of refrigerators, both gas and electric, handled by all the distributors in New Orleans," Mr. Barnes stated. "We agreed to sell the box sold by the ice manufacturer along with the electric and gas refrigerators.

"An agreement was made whereby we were to purchase the refrigerators from the dealers at a discount satisfactory to both parties, and that all refrigerators sold by us were to be financed by this company, and the dealer was to receive his money as soon as the sale was completed."

The utility also agreed to do all the advertising for the association without cost to any member. Mr. Barnes explained that the preparation of copy was the hardest task as it had to present 10 mechanical refrigerators and one ice box in cooperative advertising.

Three food preservation shows have been presented by the association and each dealer exhibited at them. The cost of the shows and advertising connected with them was borne by the New Orleans Public Service, Inc.

"Each month one or more dealer's boxes are featured on our sale floor," Mr. Barnes said. "The dealer has the privilege of displaying as many models as he sees fit. During the month, the unit is featured in the cooperative advertising.

Profits on Increase

"During the 18 months of the association's history, sales have increased, advertising has increased, dealers have made more money, and we have sold more electricity and gas."

Mr. Barnes pointed out that 3,345 electric and gas refrigerators were sold during the first nine months of 1931 as compared with 2,619 units for all of 1930.

"Eighteen months of cooperative merchandising and advertising with the gas and electric refrigeration dealers, the ice manufacturers, water heater dealers, plumbers, hardware and furniture dealers, have convinced our company," Mr. Barnes said in opening, "that the theory of cooperative selling and advertising for gas and electric utilities is sound."

Groups Misunderstood

Mr. Barnes does not believe that the present more or less general condition of dissatisfaction between the competitive dealers of appliances and the utilities exists because of any selfish desire on the part of either.

"I think it can be more clearly explained by the lack of understanding between both groups, of the other fellow's problems," he stated. "Our experience has taught us that in every instance where we went before these dealers and explained our problems, and heeded their explanation of their problems to us, a satisfactory understanding was reached.

"The sale of appliances by gas and electric utilities has long been a controversial question. Many people believe that utilities should not sell appliances. Already two state legislatures have passed laws prohibiting the sale of appliances by utilities, and similar bills are before or will be introduced in the near future, before many other state legislatures."

COOPERATIVE DEALER RELATIONSHIPS URGED

ATLANTIC CITY, N. J.—Cooperative dealer relationships with local department stores, house furnishing, hardware and furniture dealers, master plumbers, heating and ventilating contractors, and other dealers of gas appliances were advocated by Oscar H. Fogg, vice president of Consolidated Gas Co. of New York, in presenting the report of the committee of allied trades at the Wednesday, Oct. 14, session of the American Gas Association.

"The dealer is, of course, interested in merchandising activities from the standpoint of merchandising profit," Mr. Fogg reported. "The utility is interested for a totally different reason—extending the use of gas service is the sole incentive underlying the utility's activities.

"The problem becomes one of finding a common ground of cooperative endeavor whereby the activities of each interest may be profitably directed.

"In some sections, the cessation of utility merchandising activities has resulted in injury to both sales of dealers and interests of utilities," the chairman continued.

"We believe that cooperative relations developed on fair and accepted business lines which will give full consideration to the promotional requirements of the utility companies while at the same time giving weight to the purely merchandising aspects involved, will be profitable to both."

Mr. Fogg also reported that the committee believes that gas utilities should tenaciously resist any effort to deny them their inherent right to promote the use of their service through stimulating the use of safe, efficient, and approved gas-consuming equipment, recognizing that sound cooperative dealer relationships can be developed to the advantage of all concerned.

In opening his report, Mr. Fogg presented the resolution adopted by the executive board in regard to dealer relationship.

KELVINATOR SALES CORP. AT ST. LOUIS MOVES

ST. LOUIS—The Kelvinator Sales Corp. has moved into larger quarters at 4200 Forest Park Blvd. The original St. Louis branch of the corporation was established in 1914. R. C. Kauck is local manager of the concern.

CLEVELAND STORE SELLS MAYFLOWER UNITS

CLEVELAND—The Grover C. Bauman Co. has taken on Mayflower refrigeration. Bauman held a special display to show the Mayflower in East Cleveland.

Gas President

R. W. GALLAGHER
New president, American Gas Association

* * *

GAS ASSOCIATION ELECTS GALLAGHER NEW LEADER

ATLANTIC CITY, N. J.—R. W. Gallagher, president of the East Ohio Gas Co., Cleveland, was elected president of the American Gas Association in the first session of the association's annual convention here last week.

Other officers were named as follows:

Arthur Hewitt, Consumers Gas Co., Toronto, Canada; N. C. McGowen, vice president, United Gas Public Service Co., Houston, Tex., and Howard Bruce, chairman of the board, Bartlett Hayward Co., Baltimore, Md., vice presidents.

William J. Welsh of the New York and Richmond Gas Co., Staten Island, N. Y., treasurer.

New directors were elected as follows:

F. S. Wade, president, Southern Counties Gas Co., Los Angeles, Calif.; B. J. Mallaney, vice president, the Peoples Gas Light and Coke Co., Chicago, Ill.; H. C. Abellwn, vice president, Electric Bond and Share Co., New York; P. S. Young, vice president, Public Service Electric and Gas Co., Newark, N. J.

H. Russell, president, Rochester Gas and Electric Corp., Rochester, N. Y.; C. N. Lauer, president, Philadelphia Gas Works Co., Philadelphia; F. C. Freeman, president, Providence Gas Co., Providence, R. I.; F. A. Miller, chairman of the board, S. R. Dresser Mfg. Co., Bradford, Pa.; J. S. De Hart, Jr., president, Isbell-Porter Co., Newark, N. J.

MIAMI DAINTY SHOP BUYS KELVINATOR UNIT

MIAMI, Fla.—In Mother Griffins Dainty Shop, F. J. McGinnis, Inc., has installed an S-7 model Kelvinator refrigerator.

CUTHRELL EXPLAINS BROOKLYN PROGRAM

ATLANTIC CITY, N. J.—By explaining the system of dealer cooperation used by the Brooklyn Union Gas Co. in stimulating appliance sales, Hugh Cuthrell of that organization urged friendly relations between dealers and utilities in an address before the commercial section of the American Gas Association convention, Tuesday morning, Oct. 13.

"A mere declaration of principle on the part of our association is not sufficient and furnishes no substitute for the hard work necessary to bring about a condition of dealer-cooperation," Mr. Cuthrell reported.

Through the use of lantern slides, Mr. Cuthrell showed the delegates the increase in appliance sales of the Brooklyn Union Gas Co. through a dealer program inaugurated 20 months ago.

"During the 20-month period, the sales of appliances through dealers grossed approximately $800,000," he explained. "Our figures show that the dealers' contribution to our total business is something over and above what would have been secured otherwise, and represents a distinct gain through a widening of the field of our operations.

"Comparing company net sales, eliminating dealer purchases, for the year 1930 and 1929, there was an increase in sales of 5 per cent. A similar comparison for the year 1931, against the year 1930, shows an increase in sales of 33 per cent."

Mr. Cuthrell attributes the success of this campaign to intelligent and wholehearted support given to it by the rank and file of the sales organization.

"To those companies which have not entered the movement of dealer-cooperation or to such companies as may have started in a small way and are about to expand the movement, it is my advice that in negotiations with the dealer there be left no suggestion that the dealer is being grudgingly given a slice of the business, but, rather, he should be welcomed with open arms and given every opportunity to profit by the arrangement.

"In Brooklyn, we do not limit participation in our plan to a selected number of dealers but the plan is open on equal terms to all dealers," he stated. "This provision, in my judgment, is essential to the success of the plan. There is nothing more natural than that the dealers and the utilities should work together for their mutual advantage.

"We must, however, realize that even after the establishment of this cooperative movement that there are certain promotional essentials connected with merchandising that the utility must carry on. It should always be the obligation of the utility, by advertising and otherwise, to create the market for gas consuming appliances; and to the dealer, there should be extended the privilege of participating in the business resulting from the market so created.

"In Brooklyn we have found that the dealer's interest in our business does not stop with his commission check," Mr. Cuthrell said in closing. "He goes much further and we find ourselves strongly fortified in our public relations through the missionary work of a satisfied advocate in every neighborhood."

Balsam-Wool
Sealed Slabs
NATIONALLY ACCEPTED
Completely satisfactory Refrigerator Insulation

WOOD CONVERSION COMPANY
Industrial Sales Offices:
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Mastercraft Refrigerator Pad and Carrying Harness

Made for all makes, models and sizes of automatic refrigerators. One size of both pad and harness takes care of many sizes of refrigerators. Illustration shows style L harness adjustable for refrigerators with legs. For models without legs use our style F. The most sturdy, simple and inexpensive unit made. Adopted by the leading manufacturers. Make of refrigerator lettered in brilliant design. Write for special booklet.

BEARSE MANUFACTURING CO.
3815-3823 CORTLAND STREET, CHICAGO, ILLINOIS

FILTRINE FILTERS for ELECTRIC WATER COOLERS
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Manufacturers of filters and coolers in all sizes.

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TRUPAR DAYTON.-OHIO
WILLIAMS ICE-O-MATIC REFRIGERATION BLOOMINGTON, ILLINOIS
B-K, Junior New Brunswick, N.J.
UNIVERSAL DETROIT, MICH.
KULAIR PHILADELPHIA, PA.
Zerozone Lifetime Refrigeration
STARR-FREEZE Electric Refrigeration
ELECTRIC RICE REFRIGERATION
Absopure DETROIT, MICH.
JACK FROST REFRIGERATION LTD. TORONTO-CANADA
JEWEL Refrigeration
H-E Electric-Automatic REFRIGERATOR PHILADELPHIA
DICELER DEISSLER MACHINE CO.
Modern
Apex CLEVELAND, O.

Leadership!! —*always the Result of Merit*

100% VERTICAL SURFACE
U.S. PATENT No. 1,776,235.
LARKIN COILS

LARKIN 100% vertical-surface Aluminum Plate Coils are not standard factory equipment with leading manufacturers by accident . . . *Sheer performance merit, real sales values*, demonstrated by test after test on the part of critical refrigeration engineers, have proven all performance claims.

It is important to know that with Larkin Coils a complete coil unit is readily available for a complete job. *The ganging of coil units is unnecessary.* Such practice requires the use of additional couplings, resulting in increased leakage and service hazards and, of course, greater installation cost.

Tremendous growth and acceptance, requiring factory enlargements, give capacity to assure 24-hour shipping service.

Larkin Coils available in 93 standard sizes and with which more than 6,000 installation combinations are possible.

IMPORTANT NEW LITERATURE FOR YOU—
We do not recommend the use of Capacity expressed in B.T.U.'s or I.M.E.'s in estimating jobs, and, for the interested trade, have a very valuable explanation of this position in the form of new literature, available on request.

LARKIN-WARREN REFRIGERATING CORPORATION
Originators and Manufacturers :: :: ATLANTA, GEORGIA

It's as easy to keep abreast as remain a length behind

The perfect rhythm of well-trained crew and the instant response to coxswain's commands make shell racing one of the most fascinating of contests. Yet success depends on the individual efforts of eight men. If one oar fails or lags or weakens, the seven remaining must make it up or fall behind. And it requires as much effort to keep up the pace, though a length behind, as to stay abreast.

Refrigerator manufacturers who are foresighted enough to insure perfection in every part are inflexible in specifying Dry-Zero Pliable Slab insulation. They know there will never be failure at that oar —that other features will never have to carry the burden of less than 100% insulation.

The superiority of Dry-Zero has been established by laboratory tests and by actual use under every conceivable condition. It meets perfectly the requirements set up by refrigerating engineers on all these points they specify:

THERMAL EFFICIENCY — LIFE — EFFECTS OF MOISTURE
FACTORY APPLICATION — ODOR

The highest thermal efficiency has been established by Dry-Zero in tests of such authorities as the U. S. Bureau of Standards and various national institutes; it will outlast the refrigerator; the Dry-Zero fibre is so resistant to moisture that it is used in U. S. Navy life jackets; its sealing flange and made-to-size measurements provide instant and perfect installation with sufficient resilience to counteract assembly irregularities; it can never absorb or give off odors.

Dry-Zero has been used in thousands of domestic refrigerators, railroad refrigerator cars and refrigerated motor trucks. The place it has won for itself gives assurance to refrigerator manufacturers that when used as the insulation for their cabinets it will provide a powerful selling argument.

DRY-ZERO CORPORATION
Merchandise Mart - Chicago, Illinois
Canadian Office - 465 Parliament Street, Toronto

THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN

DRY·ZERO

ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

Published Every Week by
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Editorial Aims of the News

To encourage the development of the art.

To promote ethical practices in the business.

To foster friendly relations throughout the industry.

To provide a clearing house for new methods and ideas.

To broadcast the technical, commercial and personal news of the field.

The Industry Expands

PERHAPS the most interesting development in the refrigeration industry this year has been the rise of some of the smaller companies. The front rank of leading manufacturers has been widened by the addition of three or four concerns which formerly were well down in the list of total sales volumes, but which now compare favorably in that respect with the topmost organizations.

Maj. Howard Blood, president of the Norge Corp., claims that Norge ranks third or fourth in the industry in total sales made this year. His concern has made a jump of about 20 places in the national ranking, he avers. In preparation for increased production in 1932, Norge has acquired the Alaska cabinet plant in Muskegon, Mich.

Copeland, generally considered one of the leaders, has had a highly satisfactory increase in sales volume this year, and has been particularly successful in the commercial field.

Mayflower Sales Tripled

Mayflower refrigerators, made by the Trupar Mfg. Co., also stand well in the sales volume list. Sales of this make have tripled 1930 sales which, in turn, had doubled the 1929 figure. For 1932 Trupar executives are planning a production schedule which is twice that of 1931, and are seeking 30,000 additional square feet of factory space.

Williams Ice-O-Matic refrigerator sales were several hundred per cent greater this year than in any previous year. Early in January Williams officials decided to separate refrigeration sales from oil burner sales, and set up a national distributor organization. Formerly Ice-O-Matic refrigerators had been sold directly to Oil-O-Matic dealers. Result: an increase in sales which was so unexpectedly large that the factory was unable to cope with the orders.

Profit by Others' Experience

The story of what happened at Williams is a good illustration of one of the major reasons for this expansion of the industry. Smaller companies have taken advantage of lessons learned by the larger manufacturers. They have adopted many of the ideas and plans and methods which work, and they have avoided some of the schemes which have proved impractical.

A more important reason for the advance of some of these smaller companies is the fact that they have profited from the tremendous amount of promotional activity which has been carried on by the leaders.

In the past few years the chief manufacturers of electric refrigerators have secured a remarkable degree of public acceptance for their products. Sales of electric refrigerators have progressed steadily upward through the period of depression, and both the product and the industry have gained and held the spotlight of public attention thereby.

Harassed and forlorn radio dealers saw a chance this spring to revive their business by taking on this popular new product. Electrical dealers hailed it as the best-selling appliance of today. Hardware stores, hard hit by the slump in the building industry, were anxious to stock an electric refrigerator or two. Department stores, whose sales have gone heavily into the red during the last two years, were easily persuaded to add this widely advertised product.

It has been through this class of dealers that the newer and smaller companies have made most of their sales this year. Hardware and department stores found that the best known makes of electric refrigerators were already being sold by competent dealers in their respective cities and towns. So they sought makes which were not represented.

Sell Through Jobbers

Distributors for these new additions to the front ranks of major electric refrigeration manufacturers have been, for the most part, jobbers who merchandise many other lines. This scheme is in direct contrast to the set-ups of General Electric, Frigidaire, and Kelvinator, which sell mainly to exclusive dealers through exclusive distributors or company branches.

Norge and Mayflower sales have been furthered by the placing of special bait on their hooks. Norge features its "rollator" rotary compressor. Previously the tendency has been to hide the machine, to avoid mechanics in talking to women. The Norge idea is that the time has come to "lift the hood." Salesmen, accordingly, carry Norge "rollators" around with them to demonstrate to housewives.

Mayflower has traded heavily on its name, with which so many favorable responses (patriotic, religious, aristocratic, historical, social, and the like) are associated in the public mind. Stressing cabinet style and appearance, as well as capitalizing on the name, Mayflower men appeal both to the eye and the ear of their women prospects.

Seek Extensive Distribution

Extensive distribution has been the order of the day with these manufacturers. The big idea is to get their refrigerators on display. They don't seem to care if half a dozen other makes are displayed alongside, so long as theirs is in the picture, too. If a dealer stocks but two or three refrigerators a year, and sells them, he has functioned.

These manufacturers are worried, however, by the fact that so many of their dealers know little about specialty selling. They understand that Frigidaire, Kelvinator, General Electric, and Electrolux get most of their business from a few highly controlled outlets, and that intensive distribution has been the winning idea with these concerns.

Impressed by this fact, the companies which have obtained such extensive distribution this year are seeking assiduously to educate their wholesale and retail outlets to the necessity of organizing special refrigeration departments and utilizing trained men, of carrying on advertising and sales promotional activities, and of *selling* electric refrigerators rather than waiting for prospects to walk in and *buy* them.

Using Sales Contests

To this end, they have instituted national sales contests. They have assembled their jobbers for conventions and conferences. They are preparing national advertising campaigns. In other words, they are again taking advantage of the successful methods which have been tried and proved by the pioneering industry leaders.

Whether or not these new companies will be able to maintain in the future the pace that they have set this year will likely depend to a large extent upon the educational job they do with their sales outlets. If they can convert their extensive distribution into the intensive variety, other things being equal, their positions in the industry should be secure.

Inasmuch as the established leaders of the industry all report increased sales volumes for this year, it is evident that the advance of the smaller companies has not been made at the expense of the older organizations. All of which indicates that the industry is in a very healthy condition indeed.

An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By GEORGE F. TAUBENECK

French Lick, Ind.

Men who have sojourned at French Lick in its palmier days shake their heads and sigh.

They can remember when private railroad cars of a score of multi-millionaires were parked on the siding which runs up into the arches of the ponderous, meandering French Lick hotel.

They can remember when all this hotel's 620 rooms (surprisingly small number for the apparent size of the hotel) were engaged for months in advance, when thousands of dollars changed hands nightly over the tables of roulette, chuck-a-luck, *chemin de fer*, keeno, and blackjack.

Those were the days when bejeweled, gorgeously gowned—and stylishly stout—women descended into the spacious marble-floored lobby, and wielded haughty lorgnettes. French Lick must have been very uncomfortable then.

At present the resort built by that adroit politician and unerring money-maker, Tom Taggart, is a very attractive spot indeed.

True, the grandeur of his palatial, yellow-brick hotel is just a bit out of step with the times. It is interesting in the same manner as an old Venetian or Viennese hotel might be—for its atmosphere, for its past glories.

But it's a poor place to bathe, shave, or get things done.

What makes French Lick attractive, especially in autumn, is the outdoors which surrounds the splendiferous palace that stands as a monument to the Taggart ingenuity.

Gardens, lily-ponds, shaded walks, bridle-paths, all enveloped in a glory of luxuriant foliage.

A riot of color in the autumn leaves, refreshing sights and sounds and smells, a mildly undulating landscape which would be at once the delight and the despair of a painter.

There are two golf courses, not too difficult, which share much popularity. There is good riding and—a short distance away—fair fishing. Also trapshooting and tennis, with good facilities for both.

Today, instead of the transplanted Monte Carlo of its rose-tinted and gold-lined past, French Lick is a garden spot of natural beauty.

It is a place where one can get away from glitter and artificiality and pomp, instead of finding oneself in the midst of these things magnified and accentuated.

Gaming can still be had, and is popular, although meekly so. One dresses for dinner.

But, withal, it is the natural beauty and serenity of the trees and hills and shrubs which make one long to stay there longer and is—for all except the handful of old faithfuls, chiefly dowagers returning to haunts of former glory—the chief attraction for the vacationers and honeymooners who go there.

Five miles from French Lick is West Baden, which modestly bills itself as "the Carlsbad of America."

The castle-like hotel there, with its domed top, its clean yellow brick facades, its background of hills and foreground of golf-green lawn, is like a shining jewel set in the midst of Indiana rurality.

Its attractions are similar to those of French Lick, although somewhat less pretentious.

As is the case with many places in Indiana, getting to and from French Lick or West Baden is a problem.

Not many years ago, fast interurban tram service linked the cities of Indiana. These traction lines so cut into the business of the railroads that the latter made little attempt to establish good connections between all points within and without.

Now the traction systems have withered and shriveled, and railroad service remains inadequate and unsatisfactory.

* * *

Pluto

One thing we haven't talked about is Pluto Water. French Lick's chief industry. Perhaps the less said about Pluto, the better.

But at French Lick you're not allowed to forget it. Even the matches are shaped like Pluto bottles.

Stone figures of His Satanic Majesty adorn porticos and arches. One is invited to inspect the bottling plant. Bars scattered promiscuously around the hotel serve it hot and cold.

It is said that the Pluto bottling works is the world's largest consumer of epsom salts.

* * *

Mitchell, Ind.

Almost the only extenuating circumstance in connection with the poor transportation facilities afforded by French Lick is that one usually gets a chance to change trains at Mitchell, Ind.

Mitchell is a truly delightful Hoosier hamlet—one main street, about two blocks in effective length, three or four spur business streets, and several shady lanes.

Some highly accommodating small boys meet you at the train, appropriate your bags, sell you a newspaper, give you information on your train, escort you to the other "depot," and, with one eye on a pocket Ingersoll, keep track of your goings and comings until you are safely abroad the train to which you are changing.

At Mitchell don't fail to sample some of the home cooking—especially the pies—dished up by the two young widows who operate Bun's restaurant.

This small cafe is just a stone's throw from the B. & O. station.

For its various classes of customers, it has three grades of table accommodations: a U-shaped counter with stools, one enamel-topped table, one table draped in oilcloth, and one with an honest-to-goodness tablecloth.

Prices are surprisingly low, and the food will take you back to boyhood days.

* * *

Indianapolis, Ind.

Indianapolis is an overgrown small town.

It is an inland metropolis. It is alive with industry. It is abuzz with people going to and fro, passing in and out through the network of railroads which make Indianapolis, on a map, resemble the core of a spiderweb. Its architecture is as modern, as masterly, and as clean-shaven as that of Chicago.

Notwithstanding these concrete evidences of the big-city status of Indianapolis, the Hoosier capitol retains the delightful flavor of the homespun villages which sprawl along the banks of the Wabash.

It's just as if Farmer John were to leave his hogs and his plow, don a morning coat with boutonniere and a derby, and appear on the boulevard swinging a stick.

Farmer John would look citified, appear sophisticated.

But he would still talk with a drawl, he would still reflect the peace of the prairies in his face, and he still would be kindly disposed toward everyone he met.

Indianapolis is like that.

It wears the dress of modernity, has the bulk of a metropolis, the importance of a capitol, and a kind of dignity nurtured in the limelight shed by many famous sons.

Yet its citizens have the timeless, philosophical attitude of the rotation farmer who plants by the moon, puts his trust in the Lord, and prays for rain.

These people have faith in the inherent goodness of all mankind. They are the sort who leave the doors unlocked at night, and put the key in the mailbox when they go away.

A more obliging race would be hard to find.

Although they now live in a moderately big city, they are neighbors yet—run over to borrow a cup of sugar and "pass the time of day," bake a luscious birthday cake for the Martin's little Johnny, "help out" when ageing Mrs. Higginbotham has "took to bed" again, "and if there is anything we can do, just let us know."

Civic pride is a strong feeling in Indianapolis.

The joy of these loyal citizens knows no bounds when one of "our boys" makes good, when a local athletic team "hangs it on" an invading foe "good and proper," when a visiting notable praises the city as a stronghold of culture.

With politics it is mightily concerned, just as it is with automobile racing, problems of distribution, basketball, poetry, the price of "hawgs," Booth Tarkington's most recent story, and the latest dance step.

It is, in short, a very *human* city.

Suppose . . .

SUPPOSE you, as a refrigeration dealer, were on the other side of the desk—*buying instead of selling*. If, by comparing all the leading makes you found out—that Kelvinator was the *only* truly automatic electric refrigerator built—that Kelvinator *alone* had 4 different, constant temperatures in the one refrigerator, each automatically controlled, without supervision or dial setting—that, in addition, Kelvinator offered *other* equally outstanding and exclusive features—WHICH, of all these electric refrigerators, would YOU BUY?

Your choice would undoubtedly be Kelvinator—just the same as Kelvinator has been the choice of thousands of others who have compared, point by point, the best electric refrigerators on the market to-day.

The electric refrigerator you would *buy*, as a prospect, is undoubtedly the electric refrigerator you should *sell* as a dealer.

Get over on the "other side of the desk" and make this test. And then, on that sound basis, let's get together and discuss the Kelvinator FULL PROFIT AGREEMENT.

•

KELVINATOR CORPORATION
14245 Plymouth Road, Detroit, Michigan
Kelvinator of Canada, Ltd., London, Ontario
Kelvinator Limited, London, England

• Kelvinator

IDEAS AND IMPRESSIONS · COMMENT · VIEWS AND EXPERIENCES

By F. M. COCKRELL

Mousetrap

"If a man write a better book, preach a better sermon, or make a better mousetrap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door."

Elbert Hubbard wrote it, misquoting Emerson, and started an argument.

Advertising men insist that the mousetrap business of the man in the woods will never get anywhere unless he tells the world about his product.

* * *

Ed Mallory

Ed Mallory referred to the mousetrap when I had dinner at his home in Tenafly, N. J., last Thursday evening.

The Mallorys live in the woods of Palisades Park, over the river from New York City, and Ed has a "mousetrap."

Manufacturing executives, engineers, patent attorneys, and others interested in electric refrigeration have been making visits to Tenafly for the past two years.

Not that Ed is a recluse with long whiskers who does not like the city.

Until he got mixed up with a mounted cop one stormy night in Chicago he was a very active business man.

* * *

Unmounted Cop

It was an *unmounted* cop, to be accurate, for the horse had fallen on a slippery pavement. The cop was pinned underneath with his head across the tracks of an approaching street car.

In his struggle to pull horse and cop out of danger, Ed strained his heart and was in bed for six months.

He is out and around now, driving a car and smoking a pipe, but still taking it easy and watching his step.

Mallory is an old-time Westinghouser. He started as an apprentice at East Pittsburgh in 1903.

He invented the first successful renewable fuse and organized the Economy Fuse Co. in Chicago.

He sold out the fuse business and during the period of the war was in confidential service of the government.

After the war he went back to Westinghouse to manage the radio department.

About five years ago he became interested in refrigeration and has devoted his time to studying the industry and designing a domestic unit of the socket type.

He has a flock of patents, and claims he can make a unit which will operate a 4-cu. ft. box on 60 watts.

That is some "mousetrap."

But Ed figures that anyone who goes into the refrigeration business these days ought to have at least a couple of million dollars to operate on.

* * *

Kitchen Consultant

In New York City last week I visited and admired the new Seeger refrigerator showroom at Fourth Ave. and 19th St.

C. A. Muessel, New York manager for Seeger, promised to send a photograph. The layout will be of particular interest to commercial refrigerator store managers seeking the most effective means of displaying the larger sizes of cabinets and walk-in coolers.

I regret that the picture cannot be reproduced in *color* to show the soft blue-green background which provides an excellent contrast with the white porcelain of the cabinets.

The store decorations were designed by P. C. Quintard, kitchen plan consultant and personal friend of Mr. Muessel.

Mr. Quintard specializes on kitchens and works with architects in designing layouts for high-class homes and institutions.

The fact that *kitchen planning* has come to be a distinct field for professional service again suggests that *kitchen appliances* represent a logical combination of related products for a dealer to sell.

* * *

Cold Canvass

Every salesman canvass 25 NEW homes each day.

This is the formula for increased sales which General Electric is now using.

There are several thousand G. E. salesmen, and the headquarters office figures that if each one canvassed 25 *new* prospects each day, it would not take very long to contact every home in the United States.

If one out of every 25 develops into a customer, it would mean some mighty nice commissions to salesmen and the sale of a lot of electric refrigerators.

But, they also realized that there would be *resistance* to the idea.

Right away, the average salesman would argue that he is already calling on new prospects as rapidly as he can.

* * *

Registered Prospects

So they made an analysis of the actual orders, written during a recent period, by one of the big General Electric distributing organizations.

In this company, the salesmen register all of their prospects in order to secure *protection on the commission.*

Now here is what the analysis showed:

(1) That 65 per cent of the actual sales were made to people who were never registered as prospects.

(2) That 10 per cent of the sales were made to prospects registered less than 30 days.

(3) And that only 25 per cent of the prospects sold had been registered over 30 days.

* * *

Asking for the Order

The figures seem to indicate that a lot of people arrive at the point where they are *ready to buy* electric refrigerators *without benefit of cold canvass.*

It would appear that there are many potential buyers just waiting for somebody to *ask for the order.*

Therefore, they believe that it will be decidedly worth while to go out and ask *a few million people* for the order.

It is simply an application of the law of averages.

* * *

Defining a Machine

The radio receiving set is a *machine,* but an electric heater is not, according to court decisions.

Judge Young of the United States Customs Court decided the case of the electric heater recently after hearing arguments of an importer, who sought a lower duty for heating elements.

The duty of 60 per cent ad valorem had been charged on imported heating elements because they were classed as plain white porcelain, rather than as parts of machines on which the duty is only 30 per cent.

If a device which produces heat from electricity is not a machine, perhaps it could be argued that the device which uses electricity to remove heat is also *not a machine.*

But apparently the electric refrigerator would be classed as a machine according to the definition that "a machine is a mechanical contrivance for utilizing, applying or modifying energy or force or for the transmission of motion."

* * *

Electric Heater

The court decided that the electric heater does not measure up to the definition because "heat is an attribute of electricity when sent through high-resistance wire, the electricity does not become the machine and neither does the wire, by means of which the energy is transformed, become the machine."

A radio receiving set was held to be a machine by the Court of Customs and Patent Appeals, "not because a property of electricity was made manifest by it, but because, after having had conducted to it the tenuous impacts of electrical energy, such receiving set receives and manipulates them and in a most marvelous way converts them into a reproduction of sound."

* * *

Heat and Sound

Furthermore this court held that "*heat* is an attribute of electricity, but *sound* is not."

In an editorial, the *New York Sun* philosophizes regarding the decision thus:

"So the householder who, having postponed the lighting of his furnace fire a thought too long, seats himself in his living room and turns on his radio, seeks amusement from a machine; but if he switches on his electric heater and adjusts its grateful rays to warm his shivering anatomy, he seeks comfort from something that is not a machine. The distinction will not bother him, no matter how much it may worry the importer who did not get his duty halved."

NORGE BUYS ALASKA REFRIGERATOR PLANT

(*Concluded from Page 1, Column 3*)

Led by John H. Knapp, vice president in charge of sales, the jobbers assembled Monday to hear Mr. Knapp outline sales plans for 1932, and to hear President Howard E. Blood talk about the product they are to sell.

C. D. Donaven, assistant, general manager, H. L. Spencer, factory manager, and I. H. Reindel, service manager, expanded the theme introduced by Major Blood.

Tuesday afternoon's session, which was held out-of-doors because of the warm weather, was opened by R. E. Caldwell, new sales promotion manager.

Mr. Caldwell introduced Harry W. Terry, of the Cramer-Krasselt Advertising Agency, who discussed 1932 advertising plans. The national advertising campaign will be the biggest in Norge history, according to Mr. Terry.

After V. K. Tremblett had talked on "Kitchen Savings," F. Aumueller of the Cramer-Krasselt agency elaborated on an advertising exhibit, which included full-page and double-page-spread advertisements for newspapers and magazines, direct mail pieces, window cards, and electric signs.

Dinner that night was enlivened by two professional masters of ceremonies, Joe Brown and Stan Bailey, and by a troupe of 10 dancing girls (who performed well in spite of a flock of assorted bruises acquired in an automobile accident earlier in the day).

R. E. Caldwell presided at the dinner, and Bob Evans of the Cramer-Krasselt Co. presented a bit of chalk cartooning.

Under the direction of C. D. Donaven, a number of distributors and representatives were initiated into Donaven's "factory department" after telling stories, dancing, and doing other stunts as commanded by Donaven.

Wednesday's sessions were opened with a luncheon, over which presided M G. O'Harra, eastern regional sales manager.

Mr. O'Harra introduced T. W. Carlisle of Strong, Carlisle & Hammond, Cleveland; Jack Waddel of General Equipment Corp., Boston, and John T. Morgan of Charleston Electrical Supply Co., Charleston, W. Va.

As was the case with other meals, a great many songs—with special Norge verses set to familiar tunes—were sung.

John Knapp was in charge of the afternoon's discussions, and introduced J. M. McCarthy of the International Magazine Co., R. E. Caldwell, M. G. O'Harra, Jack Frolich, and R. E. Densmore, western regional sales manager.

Mr. Caldwell discussed 1932 quotas, and Mr. O'Harra treated territory allocation and operation. Mr. Knapp concluded the session with an inspirational talk.

The Howard E. Blood trophy for the winner of the recent Norge Marathon Rollator contest was awarded to Strong, Carlisle & Hammond of Cleveland, at the banquet Wednesday night.

The Norge-Nestor Co. of Jacksonville, Fla., took second place in this contest, followed by the Norge-Chicago Corp., it was announced.

Dinner speakers included French Nestor of the Norge-Nestor Co, H. D. Vestal of Reinhard Bros., Minneapolis. Ludwig Hommel of Ludwig Hommel & Co., Pittsburgh, and E. E. McMullen of Norge Co. of Missouri, St. Louis.

Charles S. Davis, president, and George W. Borg, chairman of the board of the Borg-Warner Corp., made after-dinner speeches, as did Howard E. Blood, president of the Norge Corp.

Morning recreation included such sports as golf, tennis, trapshooting, horseback riding, walks, horseshoe pitching, and baths. Evening sports were those afforded by "Brown's," the French Lick "Monte Carlo."

Norge Corp., Detroit: Howard E. Blood, C. D. Donaven, J. H. Knapp, R. E. Caldwell, M. G. O'Harra, J. E. Oliphant, R. E. Densmore, A. N. Delzeith, David Ralston, Ira H. Reindel, E. E. Hubacker, G. R. Pizarro, W. C. Rowles, C. Watkins, W. F. Thorpe, T. P. Hallock, H. L. Spencer, and J. M. Tenny.

Distributors: H. P. Mueller and H. N. Reagan, Ph. Gross Hdwe. & Supply Co., Wilwaukee, Wis.; W. M. Wood, Automatic Sales Co., Houston, Tex.; H. L. Gunn, Gunn Distributing Co., Little Rock, Ark.; Will J. Schnelle, Texas Radio Sales, Dallas, Tex.; Ellis Chaney, Southern Equipment Co., San Antonio, Tex.; A. H. Meyers, Leo J. Meyberg Co., San Francisco, Calif.

W. W. Gambill and Ben Gambill, Braid Elec. Co., Nashville, Tenn.; C. B. Peck and J. T. Morgan, Charleston Elec. Supply, Charleston, W. Va.; E. E. McMullen, H. H. Walker, and E. J. Auten, Norge Co. of Missouri, St. Louis, Mo.; Jos. Herzstam, Norge-Pacific Co., San Francisco, Calif.; B. H. Spinney, B. H. Spinney & Co., Springfield, Mass.

J. G. Waddell, General Equipment Co., Boston, Mass.; David M. Trilling and Harry Montague, Trilling & Montague, Philadelphia, Pa.; H. A. Brennan and H. A. Glasser, World Utilities Corp., New York City; H. D. Vestal and A. L. Milner, Reinhard Bros. Co., Minneapolis, Minn.; W. Terhune, Columbia Phonograph Co., Atlanta, Ga.; L. L. Andrews, Columbia Wholesalers, Baltimore, Md.; S. J. Levy, W. Bergman Co., Buffalo, N. Y.

M. J. Murphy, Wm Dutton & Sons Co., Omaha, Nebr.; D. D. Duncan, Wm. Dutton & Sons Co., Hastings, Nebr.; Ludwig Hommel, Ludwig Hommel & Co., Pittsburgh, Pa.; French Nestor, Norge-Nestor Co., Jacksonville, Fla.; H. H. Crook, New York Branch, New York City; C. L. Fossati, Willys Export, Toledo, Ohio.

S. P. Cormick and T. W. Ogden, Benj. T. Crump, Richmond, Va.; B. S. Arnold, Onondage Auto Supply, Syracuse, N. Y.; J. M. Bloch and E. N. Gass, Gibson Co., Indianapolis, Ind.; A. H. Zimmerman and H. M. Ferguson, Republic Radio Corp., Detroit, Mich.; R. J. Mott and V. V. Dawson, Norge-Chicago Corp., Chicago, Ill.

F. D. Adams, The Adams Co., Waterloo, Iowa; I. H. Parks, Auto Equipment Co., Denver, Colo.; D. H. Pollitt, Norge of Canada, Toronto, Ont.; R. E. Van Doren, Duluth Paper & Spec., Duluth, Minn.; George H. Lehleitner, Stauffer-Eshleman, New Orleans, La.; R. Hollabaugh, Marshall Wells Co., Portland, Ore.; Wheless Gambill, Gambill Distributing Co., Memphis, Tenn.

Alexander Harris, Gambill Distributing Co., Knoxville, Tenn.; T. A. Carlisle and A. E. Bottenfield, Strong, Carlistle & Hammond Co., Cleveland, Ohio; J. L. Willenbrink, George Beuchel, and G. R. Ewald, Sutcliffe Co. of Ky., Louisville, Ky.

SIMPLIFIED
SELLING *and* SERVICING
SAFEGUARD YOUR PROFITS
ON THE *Cavalier*

Setting up a CAVALIER Electric Refrigerator is so simple that your truck driver can do it. Place the electrical unit in the cabinet—plug in the electric cord—and the job's done. The task of the service man, on a Cavalier installation, is reduced to a matter of minor adjustments and the usual personal instruction that keeps a customer satisfied.

Such simplified installation is possible because the unit comes from the factory complete in one piece and ready to run. It's factory adjusted and tested. Consequently service calls are at a minimum—it is never necessary to open the gas lines, in the field.

This freedom from repairs is not only a good "talking point;" *it protects your profits* after the sale is made! Write today for distributor plan.

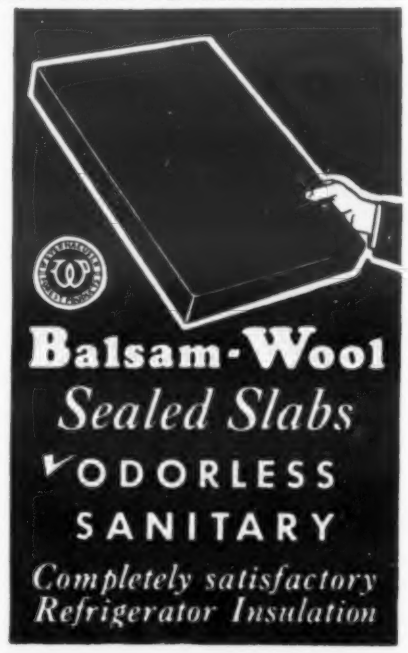
Refrigerator Division
TENNESSEE FURNITURE CORPORATION
CHATTANOOGA, TENNESSEE

Cavalier
ELECTRIC REFRIGERATOR

Check these Cavalier Features

Rotary compressor . . . only five moving parts . . . motor connected direct to compressor, no belts or gears . . . air-cooled condenser . . . entire unit on top, completely concealed . . . up to a performance standard, not down to a price . . . Dry Zero insulated.

. . . In addition to making the complete CAVALIER *Electric, we also build cabinets for manufacturers of mechanical units. Inquiries invited, without obligation.*



Balsam-Wool
Sealed Slabs
ODORLESS
SANITARY
Completely satisfactory Refrigerator Insulation

WOOD CONVERSION COMPANY
Industrial Sales Offices:
CHICAGO, 360 N. MICHIGAN AVE.
New York, 3107 Chanin Bldg;
Detroit, 515 Stephenson Bldg;
San Francisco, 149 California St.

REFRIGERATOR AID TO INDUSTRY, CHRISTMAN

ATLANTIC CITY, N. J.—"The gas refrigerator is the answer to the gas industry's need for some dramatic new appliance to attract public attention," H. S. Christman of the Philadelphia Gas Works Co., declared in speaking before the commercial section of the American Gas Association convention, here, last week.

"Compared with some of the many ingenious home appliances on the market, gas appliances lacked drama and color," Mr. Christman stated. "We believe that there is actually just as much color and romance in the gas industry as can be found anywhere. But we have needed some appliance that represented a radical advance over the old way of doing things."

"The significance of this goes much deeper than the sale of an appliance or increasing the load by so many cubic feet per month. By increasing the prestige of gas for its own use, the gas refrigerator has definitely increased the prestige of gas for all uses.

Gas-minded Today

People are gas-minded today to an extent they never were five years ago and perhaps never would have been, but for the fresh interest and impetus that the gas refrigerator has provided, Mr. Christman believes.

"Whoever heard of an 'all gas home' five years ago?" asked Mr. Christman. "There are hundreds of them in this country today. Only this year over in Long Island one builder was putting in a development of 500 homes.

"Without the gas refrigerator, the local gas company could not have offered a complete service and might certainly have lost the order for the other appliances." This was a case, Christman points out, where gas refrigeration saved the entire load.

Future Load Increase

Although the value of the load seems negligible to the gas company because it is relatively small per unit, a look must be taken to the future, because gas refrigeration must be counted on for a large share of the load increase of the future, the speaker pointed out. "And don't forget the profit is a double one—first upon the appliance, secondly upon the load."

"The desire for refrigerators, thanks to advertising, is stronger than the desire for other appliances," Mr. Christman stated. "And the purchase of refrigerators is no longer confined to the wealthy.

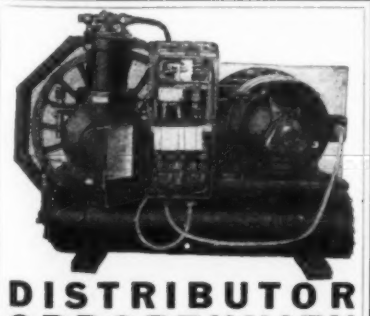
Learned Cooperation

"People of lesser incomes are just as live prospects now as the folks who live on Main St. Perhaps more so for they probably haven't been hit as hard in the stock market. If you want proof of this, all you have to do is to look at the recent sales figures of the leading refrigerator manufacturers. The industry is one of the notable exceptions which have felt no depression this year."

"What we have learned is the value of cooperation. Instead of preparing our own advertising along the line of our own ideas, we work closely with the manufacturer on gas refrigeration. By making the same sales points, by saying the same things in practically the same way, and keeping a family likeness in the physical appearance of the advertising, we tie up with the manufacturer's national advertising and make it work doubly for us," he concluded.

FORBES CONGRATULATES GAS INDUSTRY ON ATTITUDE

ATLANTIC CITY, N. J.—B. C. Forbes, editor of *Forbes Magazine*, congratulated the gas industry on its progressive attitude and courageous plans in his talk before the general session of the American Gas Association, Oct. 15. He emphasized the view that fortunes are usually laid when many executives have lost confidence. He also warned his audience that it should not make the mistake of failing to maintain the good will of the public, as, he pointed out, the railroad, coal, and old-time utility corporations had done.



DISTRIBUTOR OPPORTUNITY

EQUIPMENT

Commercial and domestic equipment. Full range of sizes. Available with or without trademark. Large volume production, low prices, and long proven quality.

Write for engineering data sheets

MERCHANT & EVANS CO.

Philadelphia Est. 1866

West Coast Star

Lee Lyons, manager, Southern California branch of Kierulff & Ravenscroft, Mayflower distributor in California territory.

SOUNDNESS OF INDUSTRY SHOWN IN 1931—FORWARD

ATLANTIC CITY, N. J.—During 1930 the revenues of the gas industry in the United States aggregated $870,000,000, according to the report of the managing director of the American Gas Association, Alexander Forward, delivered at the association convention, Tuesday, Oct. 13.

To the service of its more than 16,000,000 customers was dedicated an investment of upwards of $5,000,000,000.

Domestic consumption of natural gas in 1930 aggregated 305,000,000,000 cu. ft., while the number of domestic customers totalled 5,100,000.

Despite the generally lower price levels of competing fuels prevailing throughout the year, sales of the manufactured gas industry aggregated 522,900,000,000 cu. ft., or substantially the same as for the preceding year.

A decrease of only 7 per cent in gas sales and 4 per cent in revenues is indicated by the comparative operating reports of manufactured and natural gas companies for the first eight months of 1931.

"A thoroughgoing spirit of mutual helpfulness and cooperation pervades the gas industry," the report states. "There has been a steady advance in cooperative work with other organizations. State and regional organizations with which we are affiliated are a source of great strength to the industry."

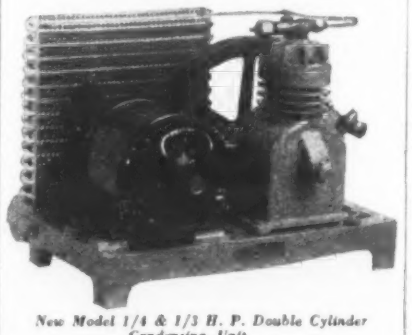
NEW MODELS

DICELER

ELECTRIC REFRIGERATION

—PRODUCTS—

BUILT TO STAND UP WITHOUT SERVICE CALLS



New Model 1/4 & 1/3 H. P. Double Cylinder Condensing Unit

Making Off-Season Profits Close Up Gap in Sales Schedule

With a complete improved line of Compressors and Condensing Units for Methyl Chloride or Sulphur Dioxide, the coming year will see greater progress for manufacturers and distributors who are standardizing on Diceler products. Our plan allows the assembler to advertise and sell under his own name. Diceler refrigeration products provide equipment for practically every refrigeration application, from the smallest apartment refrigerator to the largest market cooler. Capacities from 89 lbs. to 2,590 lbs. per 24 hours.

If you are interested in hearing further details, a letter will bring complete information.

Deissler Machine Company

Greenville, Pa.

Eastern Sales Office, 437 Montgomery St., Jersey City, N. J.

Manufacturers of complete domestic and commercial refrigeration systems

A.G.A. LABORATORIES SHOW APPLIANCE GAIN

ATLANTIC CITY, N. J.—An increase of 48.8 per cent in the number of gas appliances tested by the American Gas Association's laboratories during 1930-31 over the previous year was reported by George E. Whitwell, chairman of the laboratory committee and vice president of Philadelphia Electric Co., at the Tuesday morning, Oct. 13, session of the association convention.

The greatest increase was in house heating appliances, with space heating equipment second. Gas ranges were third, while a decrease was noticed in water heaters.

"Three basic research problems are being probed at the Cleveland laboratory at the present time by the industrial gas research committee," Mr. Whitwell announced. "One is a study of the application of recuperative principles; the second, the elimination of noises from industrial gas burners, and the third, a scientific development of the fundamental theories underlying the size, capacity, and shape of various industrial gas furnaces."

Thirty-four new appliance manufacturing companies submitted their equipment for test during the past year. A decrease of 5 per cent was shown among former clients because of mergers, business failures, and discontinuance of various lines.

SYSTEM SALESMAN WINS TRIP TO BERMUDA

BREWSTER, N. Y.—Mathew J. Fisher of the local branch of the Associated Gas and Electric System's sales force has been awarded a 10-day trip to Bermuda for selling the most Frigidaires in this territory. The award was made by the Frigidaire Corp.

Two Billion Dollars Invested in Natural Gas Industry, Caster Tells Convention

ATLANTIC CITY—"It is estimated that there are two billion dollars invested in the natural gas industry in the United States, that there are 55,000 gas wells, 72,000 miles of main and gathering lines, and 50,000 miles of distributing mains serving a population of 22,000,000 people," Judge H. O. Caster, general counsel for Henry L. Doherty & Co., declared in speaking before the American Gas Association convention Thursday morning, Oct. 15.

"There were 20 per cent more customers in 1930 than in 1928, and the investment in natural gas properties has almost doubled in the past five years," he declared.

"The increase in the knowledge of discovering oil through accumulated data on subsurface geology has led to its great overproduction, and, at the same time, to a very great overproduction of gas," Judge Caster explained.

Judge Caster warned the delegates that this increase of knowledge may lead to the early discovery of all the principal oil and gas pools or fields in our country and, consequently, lead to a much earlier exhaustion of our gas and petroleum resources.

"Pipe lines were originally thought to be the limit in length when they had reached markets 100 miles away," Judge Caster said in speaking of the distribution of natural gas. "Now gas is being transported to markets 1,000 miles away from the fields.

"The investment in these super-lines is enormous, and it behooves those who are contemplating the undertaking of their construction to make the most careful study, both of the field to determine the adequacy of the supply, and of the market, to be assured that reasonable rates can be secured over a sufficient length of time to amortize the investment," Judge Caster told his listeners.

Pipe line companies may be likened to water work coporation, the speaker declared. Water is delivered to the customer's house where he can have it in abundance whenever he wants to turn the spigot. The same is true of natural gas. The gas is delivered through the distributing company to the customer, who can cook his meals, heat his water, and his home by merely turning on the gas.

It is this service for which the customer pays, Judge Caster declared, and it is this service which the natural gas company must provide.

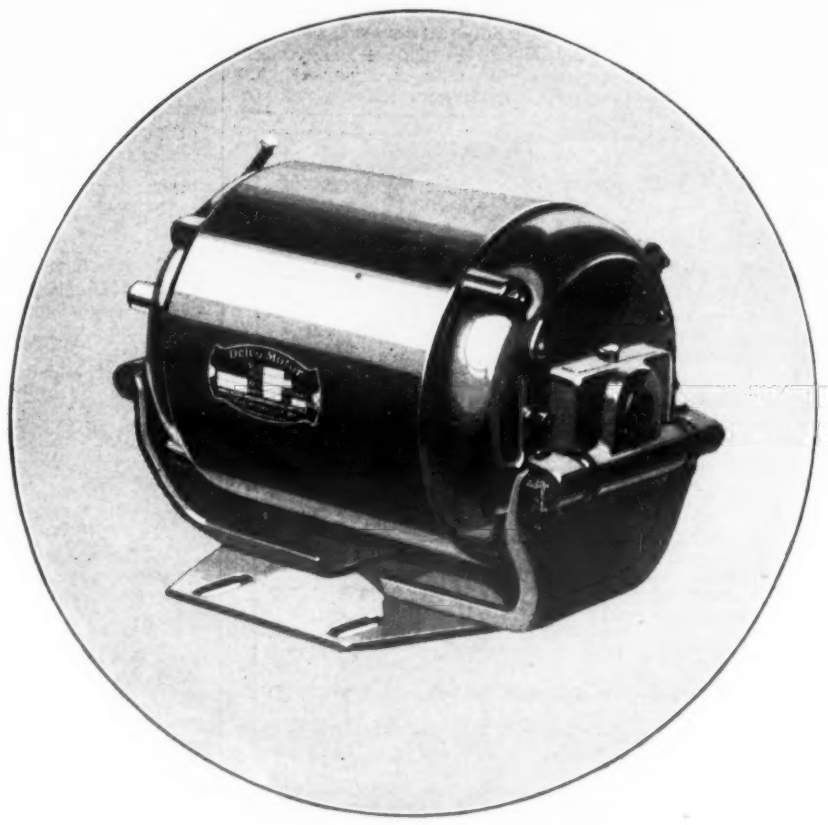
"The natural gas company must transport its gas in large quantities, must sell it for house heating and industrial purposes, and at a load factor which will enable him to earn a reasonable rate upon, and to amortize its investment—while competing with the manufactured gas company the while," Judge Caster brought out in bringing to light problems in the industry.

"The American public is fair minded and is willing that the company should have a fair return upon its property," Judge Caster stated in closing. "It does not want something for nothing, and I have an abiding faith that the natural gas company which has thus fortified itself with an adequate supply of gas, and which gives satisfactory service to its customers at reasonable rates, will succeed."

APPOINTED M. & E. DEALER

WATERBURY, Conn.—The Hadley Furniture Co. has been appointed local dealer for the M. & E. electric refrigerator.

A REFRIGERATOR MOTOR IS DIFFERENT



Electric refrigerator service *is a severe test of a motor.* It's a test of *quietness*—noisy refrigerators don't sell. It's a test of *dependability*—a motor that gives trouble may condemn an entire unit. It's a test of *ruggedness*—short-lived motors would quickly undermine the best refrigerator manufacturer's reputation. Delco Motors meet this test, because they are designed from shaft to mounting *for refrigerator service.* More than two million Delco Motors in electric refrigerators today are giving satisfaction.

National field service for Delco Motors is provided through the facilities of United Motors Service branches

DELCO PRODUCTS CORPORATION, DAYTON, OHIO

Little Stories of Interesting PEOPLE In the Refrigeration Industry

THE EXPANSION VALVE

By George F. Taubeneck

Little Stories of Interesting IDEAS In the Refrigeration Industry

Mornings Off

At least two examples of cleverness can be found in dynamic John Knapp's plan for staging the convention of Norge distributors at French Lick, Ind.

One was the idea of holding it at French Lick. Not only are unexcelled facilities for parleying, dining, and playing grouped there compactly, but the whole set-up offers a first-class opportunity for keeping a gathering under control.

Why? Because it's so difficult to get to and away from French Lick. Train connections being what they are, it is almost inescapable that all will arrive and leave at the same time.

Moreover, the French Lick hotel and its appendages comprise all of French Lick. There's no place else to go, and one can't wander far.

Everyone is always within call; and the harassed chairman of the program committee need not fear that his Thursday afternoon speakers will be gallivanting around Soho and Limehouse just when he needs them.

Idea No. 2: Business sessions were held in the afternoon, rather than during the customary morning hours.

That gave everyone a chance to sleep or to play golf, as he might choose, in the morning.

And it assured clear heads and open eyes during the down-to-brass-tacks hours.

Nights were free for organized entertainment and for those individual confabs which make conventions so valuable.

* * *

Vestal V—

There's a clown in almost every gathering of electric refrigeration distributors. At the Norge holiday in French Lick, H. D. Vestal was the boy.

Contrary to his name, he has not dedicated his native gifts to the tending of fires in a temple. He is too accomplished a funny man for that.

Judging by his extemporaneous buffoonery at French Lick, he must have been the life-of-the-party since the days of spelling bees and church sociables.

Mr. Vestal is vice president of Reinhard Bros. of Minneapolis, which concern distributes Norge electric refrigerators, Atwater Kent radios, sporting goods, and automotive supplies.

Contacting dealers in western Wisconsin, Minnesota, North and South Dakota, and a portion of Montana are 40 salesmen working under the Reinhard Bros. banner.

Branches are located in Minot, N. D., and Aberdeen, S. D.

Last year was the first that Mr. Vestal's concern has handled Norge. For next year a strong promotional campaign is planned.

* * *

Jovial Spinney

Another impromptu jokester was B. H. Spinney, Norge distributor in Springfield, Mass. Spinney is a big, happy fellow who is as boyish as he is jovial.

Like Mr. Vestal, the Minneapolis nominee for Official Jester to the Court of Norge, Mr. Spinney has no more self-consciousness than a punch press—and does his stuff just as easily, as obligingly and as effectively.

Formerly a sales manager for Wetmore-Savage, he became a Norge distributor in July, 1930. For the winter he plans to build up his dealer organization in a few outlying portions of his territory.

* * *

L. Hommel, Gentlemen

No man we've met in recent months has impressed us more by his gentlemanly bearing than Ludwig Hommel, president and treasurer of Ludwig Hommel & Co., Norge distributor in Pittsburgh.

Mr. Hommel is a small, well-knit man with white hair now on the last line of defense. His advanced age does not show in his sprightly steps, his alert eyes, or his ruddy complexion.

Courtesy and Chesterfieldian deportment are second—nay, first—nature with him. His quiet, well modulated voice is in harmony with the rest of his gentlemanly attributes.

Extravagant praise? Possibly. But meet and talk with him yourself, and see if you don't agree!

Thomas Edison and E. T. Williams

Thomas A. Edison (hatted), and E. T. Williams (now consulting engineer for Servel, Inc.), look over an electric refrigerator invented by the latter. The occasion was the New York Electrical Exposition in 1914.

For 25 years Ludwig Hommel has been a jobber. In step with the times, he prefers to be called a specialty salesman. The activities of his organization justify the term.

His dealer outlets are scattered through western Pennsylvania, eastern Ohio, and northern West Virginia.

Branch houses are operated in Cleveland, and Wheeling, W. Va.

* * *

French Nestor, Champ

Among the possibilities for challenger for the golf championship of the refrigeration industry—a throne now occupied unofficially by George Bright—is French Nestor.

The president of the Norge Nestor Co., Inc., of Jacksonville, Fla., was proclaimed the best golfer in Norgedom at the French Lick tournament.

Like George Bright, Mr. Nestor is a big man with powerful shoulders and lumberjack arms which pack a mighty wallop.

This season was a good one for Mr. Nestor. He won second place in the Norge Marathon Rollator contest, and gained back some of the ground he lost in the radio business.

He expects to double his 1931 sales figures next year.

Before taking on the Norge line he was Victor talking machine and radio distributor for 16 years, nine years in Florida, south Georgia and South Carolina, and seven years in Pittsburgh.

* * *

E. E. McMullen, Daddy of the Norge

A very folksy person is E. E. McMullen. A Hollywood casting director, seeking for an indulgent father type, would kick up his heels and sing "Hallelujah" were he to find Mr. McMullen. Rotund, jolly, perpetually chuckling, he "jus' nacherly likes people" and is liked in turn.

Mr. McMullen is president of the Norge Co. of Missouri (St. Louis) and was the first Norge distributor.

More than that, he is the real daddy of Norge electric refrigerators. Was making them before the Norge trademark came into existence.

Some eight years ago Mr. McMullen encouraged and abetted a St. Louis inventor who was working on a rotary compressor.

A little shop was rented, and there some hundred of these rotary compressors were built by hand, placed in cabinets, and made ready for the market. They were sold in St. Louis under the name, "Staycold."

Today Norge engineers refer to these machines as "the woodshed models."

Mr. McMullen showed his refrigerating machine to his friend, Howard Blood, and soon these rotary compressors were being manufactured by the Detroit Gear and Machine Co., of which the latter was president.

Mr. McMullen operates under the slogan, "Service with personal attention." Long ago he knew the value of using the user, and has played many tunes in that key.

Even today he likes to call up a customer and ask how the electric refrigerator is serving.

"During the first six months of this year," he avers, "my sales exceeded the total sales for the previous three years."

And that, gentlemen, is something—especially for a man who has been selling the same make of electric refrigerator continuously for eight years.

* * *

Trilling and Montague

An ideal partnership has been defined as one composed of two men of entirely different and complementary natures, characteristics, and talents, who divide responsibilities and duties according to their abilites, and who get along well together.

One might hazard that David M. Trilling and Harry Montague, Norge distributors in Philadelphia, measure closely to these requirements.

Trilling is a short, wiry, alert, bustling man with black, close-cropped hair. He resembles Amos Parrish, famed fashion expert.

Montague is larger, broader, less fiery, calm, suave, and erudite. Before joining Mr. Trilling he had considerable experience in selling and jobbing automobiles and radios.

Trilling, a vigorous and forceful sales leader, conducts weekly meetings of his dealers.

He has two slogans of which he is proud. One is: "Grow with us." The other: "Hot after cold business."

* * *

Thumbs Down on Department Stores

Winner of the Norge Marathon Rollator contest, Norge's first national intramural competition, was the Strong, Carlisle & Hammond Co. of Cleveland.

According to A. E. Bottenfield of that concern, the record was hung up because of a well controlled and closely supervised dealer organization. These dealers, however, are independent business men. The Cleveland Norge distributor operates no retail stores.

Each dealer working under the Cleveland Norge distributor is contacted three times a week. His problems are brought back to headquarters for analysis, if the field representative can't offer a solution.

Cooperative promotional campaigns are planned and executed under guidance of the Cleveland office. It is a specialty selling operation pure and simple, and has all the characteristics of such.

Bottenfield says his company will have nothing to do with department stores.

All overtures from this type of retailer have been turned down flat.

Department stores want extra discounts and extra favors, he points out.

More than that, they know little or nothing about specialty selling. So they have no place in the Strong, Carlisle & Hammond set-up.

* * *

Joseph Herzstam

Trained in specialty selling as a National Cash Register salesman, Joseph Herzstam continued his career with Frigidaire.

Some four years ago he became a Norge distributor on the Pacific Coast. His Norge-Pacific Co. has headquarters in San Francisco.

One of his little pet peeves is a dealer who sells on price and price alone.

Mr. Herzstam has nothing but contempt for a man who can't sell an article on its merits and get a good price for it.

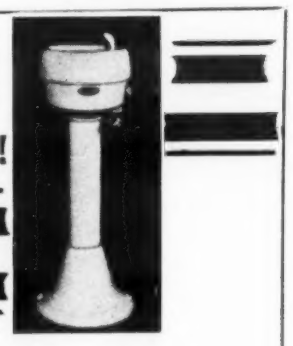
An electrical show will soon be held at the Ambassador hotel in San Francisco, and Mr. Herzstam has a little scheme for getting attention therefrom.

He is sponsoring a marathon race for runners from San Francisco high schools and colleges. The race will begin at the City Hall and end at the Ambassador hotel while the electrical show is in progress.

In local promotion the marathon race will be linked with the Norge marathon rollator.

(Concluded on Page 11, Column 1)

A WHOLE ARMY Could Quench Its Thirst at this TEMPRITE Cooler!



"The Cooling Unit Is in the Fixture"

Ten drinks or one thousand—a crowded factory or an office force of two—continuous drinking service to few or many—that's the performance of a standard TEMPRITE drinking fountain. And that is why TEMPRITE distributors find it easy to catch the interest of factory superintendents and office managers. A TEMPRITE equipped office building or factory saves the time of employees and adds the certainty that a cold drink is always available to everyone.

The cooling unit is installed directly in the TEMPRITE drinking fixture—cooling is instantaneous. The first drop is cold.

DISTRIBUTORS: Write at once for full particulars on how to secure TEMPRITE selling rights in your territory.

LIQUID COOLER CORPORATION
6527 Russell Street Detroit, Mich.

West Coast Distributors

Refrigeration Products, Ltd., 1110 North Alameda St., Los Angeles, Calif.

Balsam-Wool Sealed Slabs
EFFICIENT
PERMANENT
Completely satisfactory Refrigerator Insulation

WOOD CONVERSION COMPANY
Industrial Sales Offices:
CHICAGO, 360 N. MICHIGAN AVE.
New York, 3107 Chanin Bldg;
Detroit, 515 Stephenson Bldg;
San Francisco, 149 California St.

WE BUY
New and Used ELECTRIC REFRIGERATORS
In Any Condition
Phone, Write or Wire All Details, Type of Motor, Size of Box, Etc.
KASKEY & QUINN, Inc.
525 Arch Street Philadelphia, Pa.

THE EXPANSION VALVE

Stories of Interesting PEOPLE in the Refrigeration Industry

By GEORGE F. TAUBENECK

(Concluded from Page 10, Column 5)

Mr. Herzstam will tell you that he gets an exceptional amount of publicity in California newspapers. And when he tells how he does it, his claim sounds credible.

He makes it a rule never to submit a story which does not have either news value or "human interest."

And he carefully keeps out of these publicity stories anything which might be construed by an editor as "free advertising" (commendatory and superlative remarks). Thinks it sufficient that the names of his company and product be mentioned.

When one of his stories comes to an editor's desk it gets immediate and favorable attention, for the editor has learned that Herzstam's stories are always good.

We refrain with utmost difficulty from pointing out a moral.

* * *

New York, Chicago, Boston

H. A. Brennan, dubbed "Jimmy Walker" at French Lick, formed the World Utilities Corp. early this year to distribute Norge refrigerators in metropolitan New York.

He claims that in seven months' time Norge sales ranked third in that territory. More than 200 dealers are working under his direction.

Second distributor of Norge electric refrigerators (E. E. McMullen of St. Louis was first, you will recall) was R. J. Mott, president of the Norge Chicago Corp. His territory includes northern Illinois and adjoining portions of Michigan and Indiana.

Following his graduation from Notre Dame, Mr. Mott joined the Knight-McDougal grain exporting firm in Chicago. He became a member of the Chicago Board of Trade, and later hung out his shingle as an independent broker.

Next he was purchasing agent for the Charles E. Blodgett Co. of Wisconsin, a cheese, butter, and egg subsidiary of Armour & Co. Came then an association with the J. G. White Engineering Management Co.

And then—and now—Norge.

John G. Waddell, a Bostonian from his patrician forehead and his carefully modulated voice to his glistening shoe tips, is president of the General Equipment Corp., Norge Boston distributor.

For 10 years he was a sales manager for Wetmore-Savage, a concern which seems to graduate some good men.

The General Equipment Corp. has two major divisions.

One sells automotive equipment.

The other merchandises specialties, including Norge refrigerators, Clarion radios, Hammond electric clocks, Evinrude outboard motors, and Arvin electric room heaters.

* * *

Concerning Norge Distributors

Beginning in 1904 as a retailer of sporting goods, the Sutcliffe Co. of Louisville, Ky., is now Norge distributor for that territory.

In 1930 the Norge line joined the group of radios which the Sutcliffe Co. was selling aggressively.

"This year we have done about four times the volume of business on Norge that we did in 1930," declares J. L. Willenbrink, manager of the refrigerator division of the Sutcliffe Co.

"Dealers who started in 1930 with two or three boxes sold from 12 to 40 in 1931."

According to S. J. Levy of the W. Bergman Co., Norge distributor in Buffalo, business is thriving in that city.

Norge sales for that territory are 400 per cent greater this year than in 1930, he declares.

The Bergman organization, 40 years old, was appointed a Norge distributor in 1930.

From the firm of Stouffer, Eshleman & Co. of New Orleans came George Lehleitner to French Lick. The firm he represents was organized in 1820, and has second and third generation executives now.

The Gibson Co., Norge distributor in Indianapolis, was represented at French Lick by E. M. Goss and J. M. Bloch.

Thomas A. Edison - - Chronology

Born at Milan, Ohio, Feb. 11, 1847, of Dutch parentage.

Went to school not more than a total of two months, receiving most of his education from his mother, who had taught in a Canadian high school.

Moved to Port Huron, Mich., in 1847, where he got his first job, that of newsboy on the Grand Trunk Railway between Port Huron and Detroit. Later became proprietor of a newstand, bookstore and vegetable market.

Saved life of station agent's son at Mt. Clemens, Mich., and in gratitude, the father taught Edison telegraphy.

Worked as telegraph operator in various cities from 1863 to 1868 where he was always studying and improving the telegraph apparatus.

In 1869 he took out his first patent. It was on a vote-recording machine which was rejected by municipal authorities in Boston.

Went to New York, penniless, the same year. He happened in on stock ticker office just as telegraphic apparatus broke down. He "chased down" the trouble, fixed it, and was given position of superintendent at $300 a month.

Devised the Universal stock ticker in 1870, for which he received $40,000, the first money he had made from an invention.

Opened a manufacturing plant at Newark, N. J., to fulfill a contract with the Western Union, which had taken an option on his patents. Perfected the automatic duplex, and multiplex systems.

Established his first laboratory at Menlo Park in 1876, where he brought out the carbon telephone transmitter in 1877 which made telephony a commercial art.

During the same year he invented the phonograph, the "pet" of his early achievements.

After working upon an electrical illuminating system for the household for three years, he finally produced the first incandescent lamp in 1879. In less than two years the first factory for manufacturing the lamps was established.

In 1880 Edison was experimenting with the first electric railway.

In 1887 he moved his laboratory to West Orange, N. J., where four years later he completed the invention of a motion picture camera.

During the period from 1891 to 1900 he produced a new storage battery, and perfected concrete machinery and concrete houses.

Shortly after the turn of the century he introduced his Universal motor for operating dictaphones.

In 1912 he brought out the kinetophone, or talking motion picture, and by 1914 had perfected his disk phonograph, which brought on a new era in talking machines.

Appointed to naval consulting board upon U. S. entrance into World War, he produced no less than 47 inventions used by the U. S. navy.

After the war he started work on his experiments in the production of rubber in the U. S.

In 1928 he was presented with congressional gold medal for his achievements, and in 1929 he was feted at Dearborn, Mich., in celebration of the incandescent lamp's golden jubilee, in "the greatest ovation ever accorded a private citizen."

The latter won a prize of a cocktail set in a weird joke-swapping contest presided over by C. D. Donaven, vice president of the Norge Corp. in charge of manufacturing.

Automotive specialties are wholesaled by this firm, in addition to Norge refrigeration. Branches are maintained in South Bend, Ind.; Kalamazoo, Mich., and Lima, Ohio. Some 40 sales representatives are maintained in the field by the Gibson Co.

Norge distributor in Colorado, Wyoming, New Mexico, and western Nebraska is the Auto Equipment Co. of Denver.

I. H. Parks represented this concern at French Lick. His company acquired the Norge franchise early this year, and has established more than 140 dealers.

So far, more than 11 carloads of Norge refrigerators have been sold by his dealers.

Iowa Norge distributor is the Adams Corp. of Fort Dodge, which has a branch office and warehouse in Des Moines.

Starting with three salesmen, Fred D. Adams went into business at Waterloo, Iowa, in 1912, as a wholesaler of paper. In 1924 he bought the Duluth Paper and Stationery Co.

Now he has a sales force of 38, and is keenly sold on the idea of maintaining an adequate field staff to educate dealers in specialty selling methods.

"We feel confident," declares Mr. Adams, "that Norge now ranks third in the state of Iowa, both in the number of units sold and the total volume of sales in 1931.

"We hope to attain first place in volume of sales and units sold in 1932."

Willard M. Wood, secretary-treasurer of the Automatic Sales Corp., Norge distributor in Houston, Tex., sees a great future in electric refrigeration.

As proof of his belief in the business, he offers the fact that 16 months ago he sold the three general merchandise stores he had been operating in southern Colorado, and staked everything he had on electric refrigeration.

* * *

Father and Son

Father and son are both Norge distributors in Tennessee.

W. W. Gambill, Sr., is president of the Braid Electric Co., Nashville, Norge distributor for middle Tennessee and southern Kentucky. His concern was established Jan. 1, 1879, by J. W. Braid, deceased.

The senior Mr. Gambill is a southern gentleman of the old school, a small, neat man with a southern planter's mustache and a pair of quick eyes.

Wheless Gambill, Jr., was for eight years secretary and sales manager of the Braid Electric Co. Now he is Memphis distributor for Norge.

* * *

Never the Twain— O'Harra and Densmore

Correlating the work of all these distributors are M. G. O'Harra, eastern regional sales manager, and R. E. Densmore, western regional sales manager.

Two more fitting types for the regions they cover could not be imagined.

O'Harra, the eastern manager, is a tall, curly-haired man of distinguished appearance, drawing-room poise, courtly manners, and reserved mien.

Densmore, western manager, is a big, lumbering man with a wide grin and an open-handed manner. He smokes godawful cigars, has a line that would stretch from Chicago to Houston to Denver and back again, and hails well-met fellows at every opportunity. One can almost feel the breezes of the Western plains when he is around.

"Oh, East is East and West is West,
And never the twain shall meet."

* * *

D. H. Pollitt

Keen. That's the word which pops into your mind when you see and talk with Don Pollitt, president and managing director of the Norge Corp. of Canada, Ltd., which makes and sells Norge refrigerators in the Dominion.

He is a red-haired young man, smartly dressed, nervously active, and wears rimless nose-glasses.

Possessing an inquiring mind and a will to use it, he gathers information at every chance. Would make a topping good reporter.

According to Pollitt, some 7,500 electric refrigerators were sold in 1930 in Canada. For 1931, he predicts from 13,000 to 15,000.

The Canadian market, he declares, is but five per cent saturated.

The Norge Corp. of Canada, organized early this year, is a division of Consolidated Industries, Ltd.

At first the Norge Corp. of Canada sold directly to dealers in Ontario, western Quebec, and the maritime provinces; while in western Canada and the territory immediately surrounding Quebec City, distributors were appointed.

Recently, following the establishment of a factory branch in Winnipeg, business has been carried on directly with dealers in the three prairie provinces.

* * *

Mayflower Family

A delightfully informal family is the quartet which manages the Trupar Mfg. Co. These men refuse to take *themselves* seriously—although they do take their *business* very seriously.

In 1928 they started a business with little but a set of plans and a hatful of aspirations.

Now they *own* and operate a going concern which handles a good volume of business on pumps, and is doing a growing national business on Mayflower electric refrigeration.

Note the emphasis on the word, "own." The management of this concern still owns it, lock, stock, and barrel—despite a very respectable expansion in a comparatively short time.

H. J. Hunt, elderly but lively president of Trupar, personally met jobbers at the Dayton railroad station last week.

At the banquet Friday night he was surrounded by Dayton friends and neighbors—the mayor, the president of the Chamber of Commerce, an attorney, a banker, and others.

He introduced them all, and each paid tribute to Mr. Hunt as a good neighbor.

Also present and also introduced were the fathers of Mr. Hunt and L. G. Lindsay, vice president in charge of sales.

President Hunt is that sort of man — human, neighborly, friendly, a good citizen.

F. G. Geiler, vice president in charge of engineering—and you know what that means. When an engineer smokes a pipe, it's three-to-one he's a dreamer, an inventor. Mr. Geiler is both.

He claims to have made the first installation of a multiple system for an apartment house. He has patented several gadgets on refrigerating machines. And he has some ideas germinating in his head right now.

Geiler, ruminative, reflective, is also a folksy, at-home-to-everybody man.

L. G. Lindsay, vice president in charge of sales, is aggressive, distinguished in appearance, and has about him something of the air of an army colonel.

Yet he, too, is a next-door, on-your-level man.

More about the Mayflower meeting next week.

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance — Positions Wanted — fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

POSITIONS WANTED

WANTED. Position by capable electric refrigeration service, installation and shop man. Experienced service manager. Thoroughly familiar with all types of installations. Have worked on all popular makes of machines. Seven years' experience. Thirty years of age, married, industrious, dependable and sober. Reasonable salary. Box 371.

REFRIGERATION SERVICE AND INSTALLATIONS—Seven years' experience head of one of largest Service Departments in middle west. I am qualified to organize or manager complete Service Department. Consider any location. Box 373.

ADVERTISING AND SALES PROMOTION MANAGER. Seven years' experience. Last connection with one of the largest distributors of a nationally known electric refrigerator—supervising copy, layout, publicity, house organ, direct mail, sales campaigns and merchandising. Available immediately. Reply Box 374, Electric Refrigeration News.

Wanted: Sales Director for refrigeration sales by company who has been in business for ten years. State complete qualifications including detailed activities for past five years, with references. Enclose photograph.

Address Box 372
Electric Refrigeration News

Business Opportunity

The demands of other interests make it necessary to dispose of a going electrical merchandising business located in a prosperous city in Pennsylvania.

This concern exclusively represents a nationally-known refrigerator manufacturer in its trading area and has good connections on radio, washers, ranges and other major devices. The store is well located with reasonable rent.

Small amount of cash required to take over business.

Excellent opportunity for a man with retail refrigerator sales experience and knowledge of electrical appliance business. Act quick.

Address BOX 375
Electric Refrigeration News

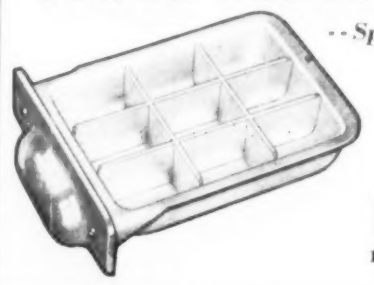
BUYER'S GUIDE

Manufacturers Specializing in Service to the Refrigeration Industry

SPECIAL ADVERTISING RATE (this column only)—$12.00 per space. Minimum contract—13 insertions in consecutive issues.

STOCK PARTS LOWER COSTS

--Speed Up New Model Production



Hoosier Stock Parts save retooling expense, eliminate profitless small operations, stop delays. We ship *from stock* to meet your production schedules. Send us your specifications for quotation on stock or special designs.

HOOSIER
LAMP & STAMPING CO., EVANSVILLE, IND

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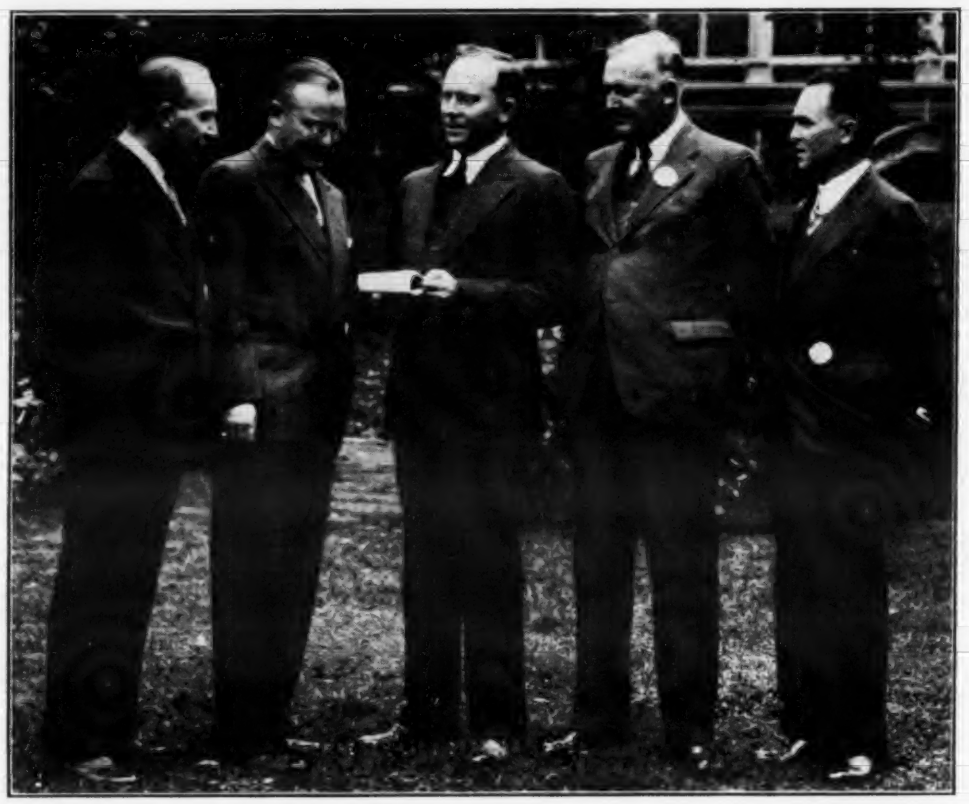
Under the Buyer's Guide heading on this page, a new service is offered to advertisers. Through regular advertising on this page, you will keep your name and your products constantly before industry buyers. Special rates are applicable. Write for details.

ELECTRIC REFRIGERATION NEWS
550 Maccabees Bldg. - - - Detroit, Mich.

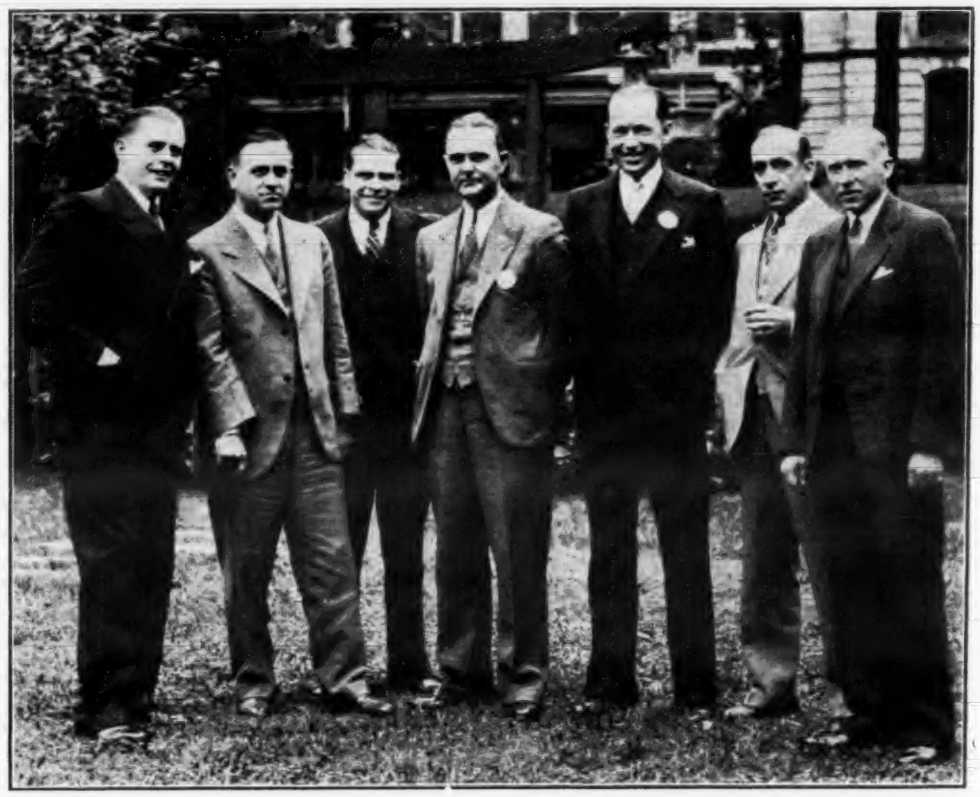
Norge Distributors Meet; Electrolux on Display

Borg-Warner Executives



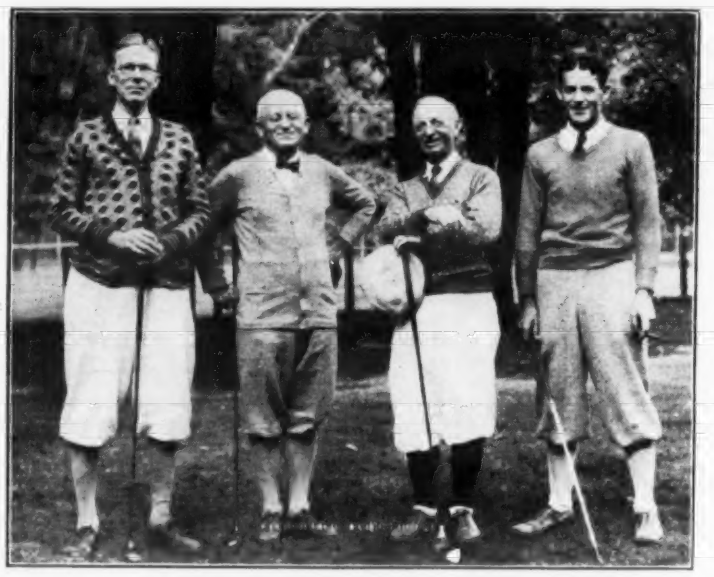
Executives of the Borg-Warner Corp., listen to Howard Blood, president of Norge, explain his plans for increasing production next year. Left to right: Charles S. Davis, president, Borg-Warner; George Borg, chairman of the board, Borg-Warner; Maj. Blood; Gus Shalberg, general counsel for Borg-Warner; Matthew Keck, treasurer for Borg-Warner.

Cramer-Krasselt on Deck



Members of the Cramer-Krasselt Advertising Agency outlined plans for the 1932 Norge advertising campaign. Left to right: Jerry Stedman, publicity director; Harry Terry, Norge account executive; Bob Evans, art director; Carl Brehn, accounting executive; B. Auermiller, direct mail manager; C. Levenseller, copy chief; Walter Seiler, vice president.

On the Links

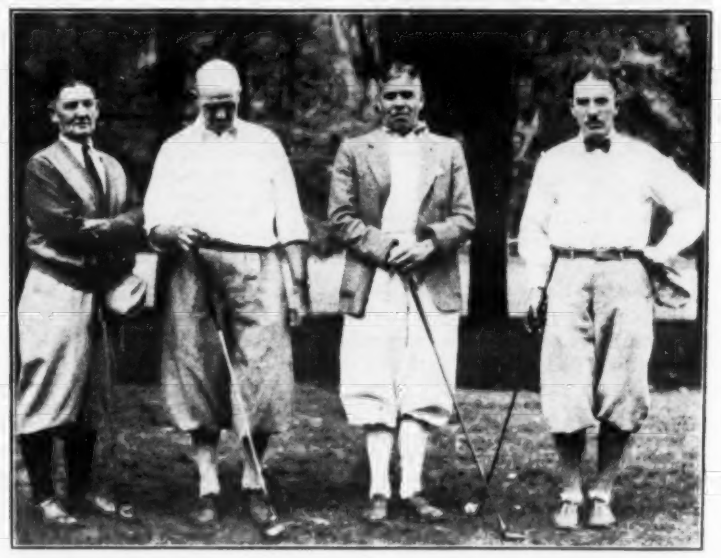


Left to right: Thomas P. Hallock, Norge southeastern sales manager; Ludwig Hommel, president, Ludwig Hommel Co., Pittsburgh; C. Cramer, president, Cramer-Krasselt Co.; George Hansen, Indianapolis representative, Cramer-Krasselt Co.

Winners

John Knapp (right), presents Howard E. Blood trophy to A. E. Bottenfield and T. A. Carlisle of the Strong, Carlisle & Hammond Co. of Cleveland.

Morning Foursome

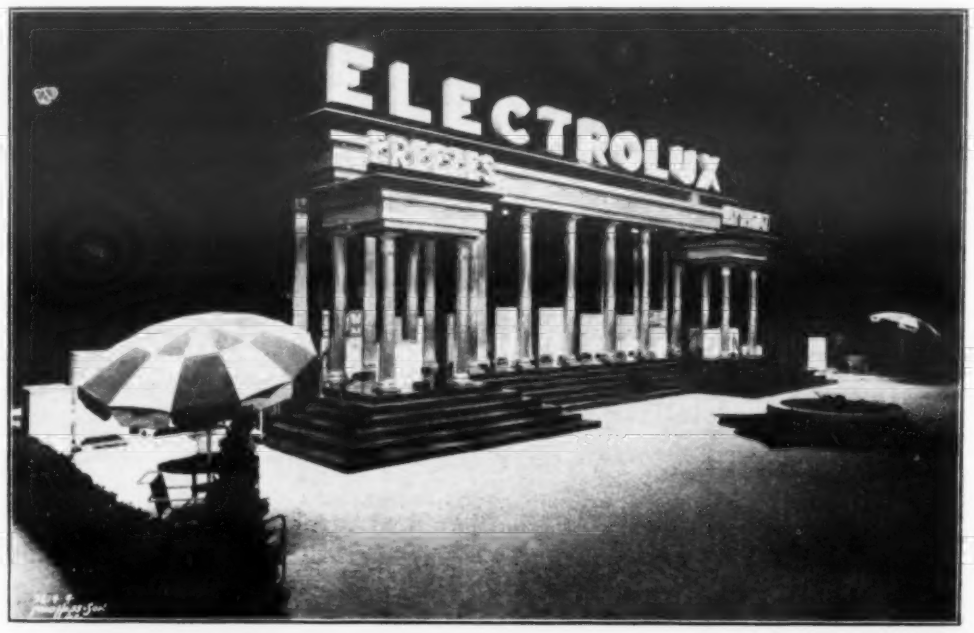


Left to right: Ned Vestal, Reinhard Bros., Minneapolis, Minn.; French Nestor, Norge-Nestor Corp., Jacksonville, Fla.; B. H. Spinney, B. H. Spinney Co., Springfield, Mass.; H. B. Jones, Cramer-Krasselt Co.

Electrolux Men at Atlantic City

Electrolux hosts at the gas convention included, left to right: B. O. Brown, E. A. Dunham, F. E. Sellman, P. J. Griffin, G. L. Roach, R. C. Bon Seigneur, H. S. Boyle, Seward Abbott, and F. G. Parker.

Center of the Stage



A giant display of Electrolux refrigerators greeted delegates to the American Gas Association last week in Atlantic City. Twenty models were ranged about the stage of the huge municipal auditorium.

In Two Parts

Engineering Section

Part Two

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

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VOL. 6, NO. 7, SERIAL NO. 135

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DETROIT, MICHIGAN, OCTOBER 21, 1931

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TEN CENTS PER COPY
TWO DOLLARS PER YEAR

FISCHMAN OFFERS NEW VENDER FOR ICE CREAM CUPS

Automatic Refrigerated Machine Employs 1-5 Hp. Compressor

PHILADELPHIA—I. Fischman & Sons, here, have developed a new self-contained refrigerated vending machine which can be used to vend cold beverages, ice cream, and other kinds of refrigerated foods. The machine will be shown at the Dairy Show next week in Atlantic City, N. J., Harry Fischman, secretary of the firm, states.

Built into a metal cabinet 65½ in. high, and 24 in. sq., the new vender houses the entire refrigerating equipment in the lower part of the case. Any type of standard sulphur dioxide or methyl chloride condensing unit may be used with the machine, installation being made through the door in the rear. A 1-5 hp. compressor has been large enough to cool the machine in all tests made in the Fischman laboratory, and with it the unit ran only part time, Engineer Richardson showed.

The ice cream or drink compartment is located in the top of the machine, a large round door on the top being opened for loading purposes. Approximately 175 of the "Dixie" size ice cream cups constitute a full charge.

Cups are loaded into 10 holes or "wells" located in a circle in an aluminum rotor which turns on a vertical axis. When one layer of 10 cups has been loaded into this rack, an elevator screw mechanism lowers the supporting element in each of the wells, leaving room for another level of cups, and so on until the machine has its full capacity. An automatic leveling device in the lower part of the cold compartment adjusts for expansion or contraction of cups in each well.

Ice cream is delivered automatically by insertion of a nickel or dime (whatever the coin mechanism is set for) in the slot at the right-hand side. Brass and iron slugs pass right through the coin mechanism, and are returned to the customer in a receptacle underneath the slot. Here, also, are returned good coins when the machine is empty.

(Concluded on Page 8, Column 1)

REFRIGERATING ENGINEERS ADDRESS SAFETY COUNCIL

CHICAGO—Safety problems in refrigeration plants were discussed by speakers before the refrigeration division of the National Safety Council, Oct. 12 to 16.

"Dry Ice" was discussed from the standpoint of chemical refrigerants by D. H. Killefer, Dry Ice Corp. of America, and Prof. Ward V. Evans, Northwestern university, spoke on other refrigerants.

"Safety in Design and Installation of Refrigeration Machinery" was the topic of Alvin H. Baer, president of A. S. R. E., while George B. Bright, Detroit, talked on "Safe Practices in the Operation and Maintenance of Refrigeration Plants."

T. A. Adams, New York, whose speech is presented on page three of this section, talked on "Safety Measures in Cold Storage Power Plants," and A. L. Blatti, Chicago, described safety measures in car icing.

COPELAND PLANT ENGINEER MAKES HOLE IN ONE

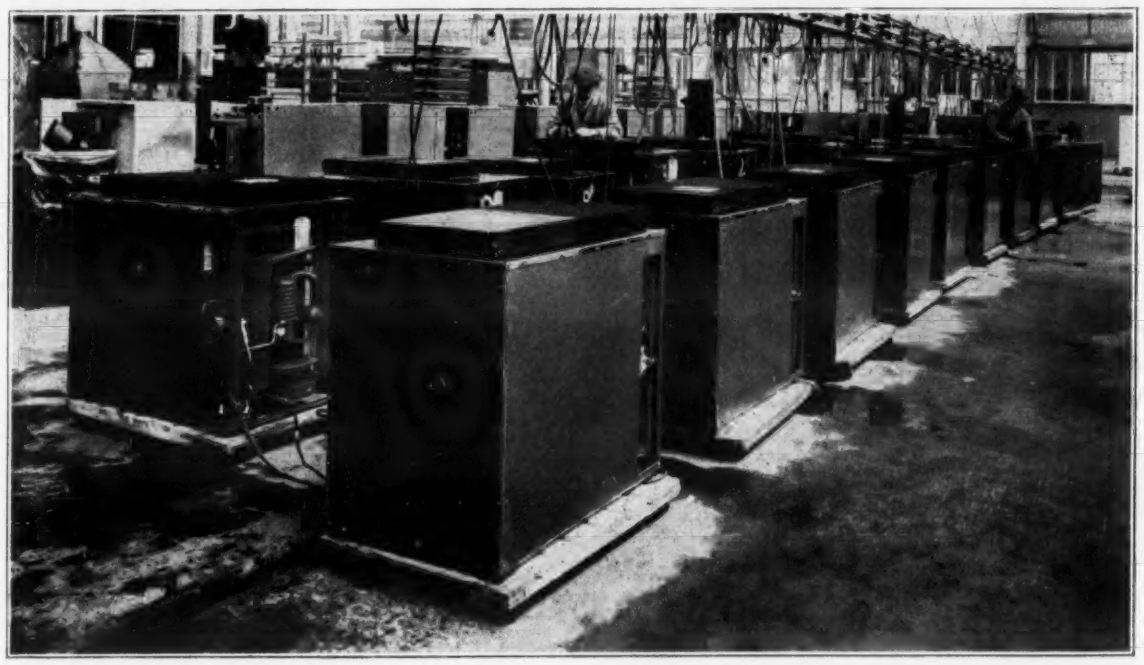
MT. CLEMENS, Mich.—F. B. Pettys, plant and tool engineer of Copeland Products, Inc., made a hole in one, Wednesday, Oct. 7, on the Breitmeyer Golf Course, Mt. Clemens. The shot was made on the 160-yard ninth hole. There were two witnesses on the green, and three others in the foursome who saw the shot.

YORK MEN TAKE AIR RIDE IN MASTER'S PLANE

DAYTON, Ohio—Six engineers from the York Ice Machinery Co. were guests of the Master Electric Co., here, Oct. 1, and were treated to a ride in the company's "all-electric" cabin monoplane.

Messrs. Graybill, Uffelman, Ruff, Bennett, Klinedinst, and Spangler were the York engineers on the airplane journey.

Building Electrolux Ice Cream Cabinets



Scene in the Electrolux factory in Luton, Bedfordshire, England, where an order for 1,000 Electrolux ice cream cabinets is being completed for J. Lyon & Son., Ltd.

G. E. OFFERS SYSTEM GUARANTEEING WORK

SCHENECTADY, N. Y.—Affirming its confidence in the future of the electrical industry, the General Electric Co., through President Gerard Swope, has offered its shop employes a plan which would virtually guarantee them six months employment beginning Nov. 1.

The new proposal, which is called "a plan to prevent further layoffs for lack of work," is to be voted on by employes of the company who are members of the General Electric unemployment pension plan.

Approximately $1,000,000 has already been distributed to General Electric unemployed during the 10 months since Dec. 1, 1930, when the emergency payments under the unemployment plan were started. One-half of this was contributed by the employes working half time or more and the other half by the General Electric Co.

"We are firmly of the belief," said President Swope in announcing the new proposition to the workers, "that the electrical needs of 125,000,000 people in the United States, especially with the increasing demand in the home, will keep the electrical industry active.

"We realize the anxiety in the minds of our hourly and piecework employes in the apparatus works, which necessarily reduces their effectiveness and restricts their output, and to relieve this, we offer for adoption by them this program, which we confidently believe we can carry out."

The plan, as described by President Swope, is "to so divide the work that there will be no further layoffs for lack of work between Nov. 1, 1931, and April 30, 1932, without compensation; and that all those on the payroll Nov. 1, 1931, will receive during this period not less than the equivalent of one-half of their average weekly earnings for full time, but in no case more than an average of $15 a week.

CHAS. E. YATES TO ACT AS INDEPENDENT COUNSEL

CLEVELAND—Charles E. Yates, refrigeration counsel, has opened an office in the Hanna Bldg., from which he will supply special service to manufacturers of smaller refrigerating equipment and to those considering entry into the field.

The service will embrace engineering design, production aids, service helps, market survey, and the selection of suitable components.

TWO ILG ROOM COOLERS INSTALLED IN CHICAGO

CHICAGO—A room cooler made by the Ilg Electric Ventilating Co., here, with a model 150-W Universal condensing unit has been installed in the director's room of the Hart, Schaeffner and Marx Co.

A similar installation has been made in the investment house of Stein, Alstrine and Co.

The Midwest Engineering Co. of Chicago made both the installations.

Copeland Designs New Beverage Vender

MT. CLEMENS, Mich.—Engineers of Copeland Products, Inc. have designed a refrigerated beverage vending machine which consists of a special adaptation of a standard Copeland water cooler. The new machine is being marketed as the Copeland Auto-Fount, according to W. D. McElhinny, vice president in charge of sales, and can be set to accept either nickels or dimes.

The machine will produce from 6- to 10-ounce drinks, depending on the setting of a small adjusting nut which regulates the dispensing valve. The valve operates in conjunction with the coin mechanism, the latter acting as a locking device until the nickel or dime is inserted.

The refrigerating equipment is housed in the base of the machine, and is automatically set to keep the beverage at the desired low temperatures, according to the announcement.

Home Air Conditioners Lack Refrigeration At Gas Show

By John T. Schaefer

ATLANTIC CITY, N. J.—Although a good many exhibitors at the convention of the American Gas Association here last week showed equipment labeled "air conditioning for the home," none of the machines displayed utilize refrigeration except that afforded by the coldness of city tap water.

Attendants at practically all of the booths advertising domestic air conditioning systems were enthusiastic about the future of air conditioning, but they claimed that the cost of refrigerating equipment large enough to cool a house is too high for the home owner.

Displayed by the Carrier-Lyle Corp. was the Carrier "Weathermaker," a basement-installed unit which warms air by gas, humidifies it automatically by a cylinder containing water in the combustion chamber, cleans the air by passing it through a 2-in. thickness of fine wire filter, and distributes the air

(Concluded on Page 8, Column 1)

REFRIGERATION TRAINING SCHOOL MOVES

PITTSBURGH—The Refrigeration Training School & Shops, Inc., a refrigeration school of this city, formerly known as the Industrial Tech Institute, has just moved to new quarters at the corner of Ferry St. and Boulevard of the Allies, according to an announcement from Frank B. Kinzler, treasurer.

Paul B. Hughes, who was formerly a Frigidaire service supervisor, heads the organization as president, while William J. McCall, who was also associated with Frigidaire, is vice president. Mr. Hughes and Mr. McCall direct instruction in class and laboratory work.

DR. HILL GIVES VIEWS ON AIR CONDITIONING

By Phil B. Redeker

CHICAGO—"The ideal air conditioning plant to meet present day demands will be one which will heat or cool the air to proper temperatures, clean it, circulate it, and control humidities," believes Dr. E. Vernon Hill, head of the "Aerologist" laboratory, located at 121 N. Clark St.

The air conditioning plant of the future, Dr. Hill predicts, may be one which will do a lot of additional things such as ionizing the air and destroying certain forms of bacteria, but at the present time with very little practical application a plant that can carry out the five above-mentioned essentials will be satisfactory.

Dr. Hill, who comes by his title by way of medicine rather than engineering, has inclined a good deal of his study to the ultimate result that air conditioning will have upon the human being.

"What is this thing called 'fresh air'?" he queries. "Are we always so sure that the air outside is better for the human than the air which is receiving proper circulation indoors?"

Some of his experimentation has been conducted with an eye to determining the efficiency of workers under different temperatures and varied relative humidity.

Ammonia and methyl chloride units have been tested out in the laboratory with reference to their efficacy in room cooling through various devices, Dr. Hill states.

One of the systems which seemed rather suitable, according to Dr. Hill, employs a 1¼-ton refrigerating machine in the basement, with a damper for each of the five rooms.

A manually operated switch allows the air to be blown over an air-washer and through the ducts into one of the rooms at one certain time, this latter feature also being controlled by switches conveniently placed in the rooms.

"The system which will cool one room at a time is probably the best at the present time, for the home or small store because the load becomes out of

(Concluded on Page 2, Column 5)

'MITYCOLD' REFRIGERATORS NOW IN PRODUCTION

TOLEDO—Production of the "Mitycold" electric refrigerator has been started at Upper Sandusky, south of here. Before the first of the year they expect to be turning out 50 per day, according to officials of the company.

The refrigerators have all-steel frame with 5-in. legs. A heavy door and top, and straight, heavy, bar type shelves are features claimed for the models. They have a cold control and a buffet top.

In their advertising campaigns, dealers are to stress the cold control, hydrators, chromium hardware, rubber ice trays and space. Paul F. Berry is president of the company, with general sales offices in Chicago.

SELLMAN SHOWS USE OF GAS FOR AIR CONDITIONING

Describes Installations In 2 Homes Using Silica-Gel

ATLANTIC CITY, N. J.—Descriptions and operating costs of two air conditioning systems using silica-gel and operated by gas were presented by N. T. Sellman, director of sales and utilization for the Consolidated Gas Co. of New York, before the industrial gas section of the American Gas Association, Wednesday afternoon, Oct. 14, here.

Later in the evening Mr. Sellman was presented with the Charles A. Munroe award, which is given annually "for the most outstanding recent contribution by an individual toward the advancement of the gas industry."

The equipment was installed under the direction of the research committee of the association, and operating performances were carefully checked, Mr. Sellman explained. One was placed in Pelham, New York, the other in Chicago.

"These two silica-gel units supply a slightly cooled dehumidified air to the space which is to be conditioned," he said. "A circulating fan maintains the movement of air through a circuit which includes the conditioned space, the silica-gel unit, and the supply and return ducts."

A portion of the moisture laden air returning from the conditioned space is by-passed through a silica-gel dehumidifier and rejoins the main air stream, he showed, thus providing a mixture whose moisture content is lower than that of the returned air. "The moisture is then propelled through an indirect water cooler which reduces its temperature slightly, and is then distributed by the duct system to the space to be conditioned," he said. "A duct equipped with a slide shutter makes it possible to draw in as much or as little outside air as may be found desirable."

Although the Chicago and Pelham in-

(Concluded on Page 2, Column 1)

REFRIGERATOR MATERIALS SHOWN IN GAS EXHIBITS

ATLANTIC CITY, N. J.—A number of parts and materials used in refrigerator manufacture and installation made their appearance in the exhibits of the American Gas Association here last week.

American Brass's corrosion resistant Everdur was shown fabricated into tanks, while the use of Armco iron was portrayed in the booth of the American Rolling Mill Co.

Republic Steel's stainless Enduro was shown on a Savory gas toaster and a gas fireplace. In another booth Youngstown Sheet & Tube Co. exhibited its Galvaneal, a sheet steel for enameling.

Refrigerator shelving was displayed by the Union Steel Products Co., and enamelled pressed steel legs appeared in the booth of the Youngstown Pressed Steel Co.

Insulations were exhibited by Johns-Manville Corp., Therminsul Corp. of America, and General Insulating & Mfg. Co.

The small bimetallic disc thermostatic element, which shuts off the Electrolux flame in the event of its failure, was demonstrated by the Spencer Thermostat Co. with samples which could be flexed in by the heat of one's hand, and which bounced merrily upward shortly after being placed on a cold table.

Recording thermomoters were displayed in the booths of the Bristol Co., C. J. Tagliabue Mfg. Co., and Foxboro Co.

Minneapolis-Honeywell Regulator exhibited various controls, including its new Protectoglow which employs a very small current passing through a gridglow tube and a gas flame for a safety shut-off feature.

L. A. MacCARGER DIES IN CLEVELAND CLINIC

CLEVELAND—L. A. MacCarger, formerly with Absopure Refrigerator Co. and later with Kelvinator Corp., died in the Cleveland Clinic, here, recently. Mr. MacCarger was connected with the Brunner Mfg. Co., Utica, N. Y., at the time of his death.

N. T. Sellman Tells Gas Meeting About Use of Silica-Gel In Gas-Fired Air Conditioning Installations

(*Concluded from Page 1, Column 5*)

stallations had identical equipment, they showed somewhat different operating characteristics, which Mr. Sellman ascribed to the different rate of air infiltration in the two houses, as well as differences in temperature and humidity. That the Chicago climate shows a greater need for dehumidification than Pelham's, he showed by the following record of operating time:

The Pelham system was in operation for 79 days; this installation being ready for operation as early as June 25. During this entire 79-day period, 325 hours of operation were recorded. The Chicago system was not put into operation until pretty near a month later, having only 48 days of operation, and during this period was in use 338 hours.

"One factor, however, had a material effect in reducing the need for air conditioning in the Pelham installation during the later part of the summer. Approximately Aug. 1, the Pelham house was completely insulated and thereafter there were only four days when the temperature and humidity in the house were such that operation was necessary. In addition to that, local conditions, such as shade and exposure, have their effect.

"Computed on a theoretical basis from the period of May 15 to Sept. 15, it would appear that the Pelham system would require 500 hours of operation and the Chicago system 850 hours of operation. Expressed in percentage this would be: Pelham 16.7 per cent of the time, Chicago 28.8 per cent. Continuous operation for more than 18 hours occurred five times at Pelham and four times at Chicago. High night temperatures accompanied by high moisture condition of the outside air causing extreme humidities necessitated these long periods of operation," he said.

Both houses are equipped with warm air heating plants for winter operation, he pointed out. "The conditioning systems used the same ducts to distribute air, and although the duct systems were not specifically designed for air conditioning, they functioned well enough to maintain uniform temperatures and humidities in the conditioned space.

"The house which is not designed to allow the closing off of rooms where a conditioned atmosphere is desired must be conditioned throughout. Partial conditioning of a space open to an unconditioned space will result in an influx of unconditioned air to the conditioned space. Conditioning of the entire house volume would seem most desirable even though the waking hours of the occupants are spent in two or three rooms, because one of the greatest benefits enjoyed by the occupants during the past summer was a comfortable bedroom on hot humid nights. The installation of a conditioning system for bedrooms only would be used so seldom that it would yield a poor return on the investment," he averred.

Both the Chicago and Pelham systems were manually operated, Mr. Sellman explained, the systems only being in operation when the occupants felt that greater comfort was desirable. "Thus, it would appear that if automatic control is attempted, all doors and windows would have to remain constantly closed, as under these circumstances rapid changes of outside conditions from comfortable to uncomfortable would not be immediately felt inside and the system would therefore not operate unnecessarily.

"It is also believed that these would be a difficulty of habituating people to keeping all doors and windows closed and this would complicate the problem of automatic control. Considerable educational work would be necessary to make people understand that a house could be maintained more comfortably in summer with a conditioning system if windows and doors were kept closed. However, experimentation is necessary to determine definitely whether operating time is more or less with automatic control.

"The cost of operation per hour of the respective systems after final adjustments and changes was as follows:

Pelham System

Gas	145.5 cu. ft. at $ .60/M		—$.087
Water	36.5 cu. ft. at 4.00/M		— .146
Power	1.5 kw. at	.04/kwh	— .060
Total hourly cost			$ .293

Chicago System

Gas	118.8 cu. ft. at $.78/M		—$.092
Water	53.7 cu. ft. at .60/M		— .021
Power	2.39 kw. at	.037/kwh	— .088
Total hourly cost			$ .212

Mr. Sellman pointed out that the gas consumption was higher and the power consumption lower in Pelham, because the Pelham system treated 25 per cent more air and circulated 80 per cent less, therefore, requiring more gas for reactivation and less power for the circulating fan. The Pelham system's water consumption was reduced to a rate only sufficient to keep the house temperature from climbing.

"Cheap water in Chicago made this refined regulation relatively unnecessary," he said. "As an illustration of how existing unit costs of power, gas, and water effect the cost of operation, the Pelham unit costs were applied to the Chicago consumptions and vice versa." A comparison of total cost follows:

Pelham System

Gas	145.5 cu. ft. at $.78/M		—$.114
Water	36.5 cu. ft. at $.60/M		— .021
Power	1.5 kw. at	.37/kwh	— .055
Total hourly cost			$ .190

Chicago System

Gas	118.8 cu. ft. at $ .60/M		—$.071
Water	52.7 cu. ft. at 4.00/M		— .211
Power	2.39 kw. at	.04/kwh	— .095
Total hourly cost			$.377

By merely changing the relative rates, maintaining the units of consumption, the Pelham system was reduced from 29.3 cents per hour to 19.0 cents per hour, and the Chicago system raised from 21.2 cents per hour to 37.7 cents per hour. Even with Chicago's low water rates it appears most important that water consumption must be either materially reduced or preferably eliminated, he believes.

Urges Cooling by Gas

"In my opinion the next step is to develop an air cooled silica-gel dehumidifying unit coupled with an air cooled silica-gel water vapor refrigerating unit for the purpose of lowering the temperature of the circulating air. This system would be a good load builder for both gas and electricity, and be entirely void of the usual restrictions to which large refrigerating systems are subjected," Mr. Sellman said. "The water used in the refrigerating portion of the system would be of little consequence."

Even should this development be difficult, the prospects for summer air conditioning for domestic residences are still as favorable as they were before the recent installation, he believes. The past summer's work has demonstrated that demumidification, with but slight lowering of temperatures, is feasible, and from the point of view of those who experienced it, it is a desirable adjunct to the home. Improvement of operating characteristics and reduction of installation cost are needed to place summer air conditioning within the reach of the public," he stated.

"A third installation of different design was made in Dallas, Tex.," Mr. Sellman announced, "but was not completed until the end of the past summer so no operating information is available.

"A brief description of the Dallas system is of interest because it embodies a different application of the silica-gel absorption system," he said. "In Dallas, where relative humidity of the outside temperature is consistently low and the temperature high, the silica-gel system supplied air which had been cooled only.

"The air is circulated as in the other system, the returning warm air, however, passes through an indirect water vapor cooler and is distributed to the conditioned space. The silica-gel unit in this case employs its absorbent properties for producing a water vapor refrigerating cycle. The water from a condenser is expanded to vapor in the coils of the water vapor cooler."

The latent heat of evaporation is supplied from the air passing around the coils. The vapor passes from the cooler to the gel unit where it is absorbed, the action of absorption producing a partial vacuum which induces the motion of the water vapor. The absorbed vapor is revaporized by the heat of steam in the coils imbedded in the gel and proceeds to a condenser, the condensation causing a vacuum which further induces the motion of the water vapor. From the condenser, water travels to the expanding coils. Steam is supplied by a gas fired steam boiler. The condensing water is cooled in an evaporative cooler and reused.

Mr. Sellman believes the next step will be to construct a system which is a combination of what was installed in the northern climates and that installed in Dallas, with the addition that all cooling and condensing be accomplished by circulating air.

Concluding his talk with a discussion of the application of gas to commercial refrigeration, Mr. Sellman reported that there are four substantial companies now actively studying this subject. "All four concerns appear to have the correct conception of the problem, and are striving to produce a system which will operate on a continuous cycle," he said.

Prefers Air-cooled Machine

In this development, he believes that air cooling of the machine will be preferable, but not an absolute necessity. "In communities where water costs $1 per 1,000 cu. ft. or more, the overall cost of operating an air cooled unit with its somewhat lower efficiency will still be less than the cost of gas plus water on a water cooled system," he claimed. "Air cooling reverts the expense of water to some additional gas consumption because of lower efficiency, and in most communities the relative rates are such that the overall operating cost would be less," he said.

At the conclusion of Mr. Sellman's talk, R. G. Monroe of the Public Service Co. of Colorado arose to ask what humidity changes the gas air conditioning system effected. He was told that about 30° reduction was made in humidity, and a 2° or 3° temperature change.

E. D. Milener of the headquarters staff of the A. G. A. got up next to tell about the first gas operated air conditioning installation—that in the offices of the Dallas Gas Co., Dallas, Tex. In that operation, he said, compression refrigeration was used for the cooling and gas for the dehumidifying. He opined that one of the drawbacks to present methods of air conditioning has been that temperatures are reduced too far, and insufficient dehumidification accomplished. J. C. Patterson, vice president of the Silica-Gel Corp., then pointed out that gas refrigeration using silica-gel controls the dehumidification independently of the cooling effects.

DR. HILL GIVES VIEWS ON AIR CONDITIONING

(*Concluded from Page 1, Column 4*)

all reason when an attempt is made to cool an entire building," Dr. Hill states.

Dr. Hill declares that there is no need for "close" humidity control in present room cooling systems.

"Any room-cooler that will bring the temperature down will dehumidify the air enough for ordinary comfort," he states.

That the problems in humidity control are full of queer tricks and are as yet not all solved was illustrated from the study of relative humidity fluctuations made by Prof. G. L. Larson of the University of Wisconsin in the air conditioned ballroom during the Junior Prom held at that institute, Dr. Hill points out.

As the crowd began to gather, the relative humidity took a gradual rise, reaching a more or less steady level by 9:30 p. m., at which time the majority of the people had arrived.

When the dancing was going on and during the grand march, the relative humidity would take a sudden jump of about 10 per cent, to recede again when the music stopped and the dancers rested.

As the dancers left to go home, the relative humidity slowly dropped until it was at about the same point that it had been before the dance started.

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STREAMLINE Tee — *Copper to Copper to Copper* — Patent 1,770,852. Patent 1,776,502 Other patents pending.

STREAMLINE Cross — Patent 1,770,852. Patent 1,776,502 Other patents pending.

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(128)

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Adams Offers Approved Safety Methods For Refrigeration Plants

By T. A. Adams*
The Manhattan Refrigerating Co., New York City.

IT IS the duty of the executive of a company operating a power plant to take every possible precaution to prevent accidents. An executive must consider it his responsibility to seek out the dangers to the lives of his employes. It is his duty to act immediately upon the discovery of these dangers.

If we know how to save a life, and if that knowledge is not given to our employes, we are responsible for the life lost through our neglect.

The executive must provide every mechanical means for the avoidance of accidents. He must do more than this—his employes must be chosen for physical fitness and qualification for the work, and they must be taught and drilled in the most modern methods of care, and be continually reminded of their personal responsibility for the safety of themselves, their fellow-employes, and the plant.

Any power plant offers many possibilities of accidents, because of the use of high pressures, and because of the moving parts of machines. All the precautions necessary in the ordinary plant are doubly necessary in the power plant of an industry employing gases under high pressure. A broken water pipe may be a serious thing sometimes—but an ammonia break is always a potential hazard not only in the plant, but throughout a considerable area around the plant. This fact increases the need for care, and measures for safety are required which would be uncalled for in the ordinary plant.

Because of the danger from ammonia leaks, I am personally opposed to direct expansion of ammonia in the cold storage rooms. The greater the quantity of gas in use and the greater the distance it travels from the power plant, the more likelihood there is of serious accident. Aside from a possible property damage from leaks, the use of brine is absolutely safe. I believe that ammonia should be confined to the power plant.

The suggestions for safety which I now offer have been boiled down to fit into the time at my disposal

In order to prevent dangerously high pressures in the ammonia compressors, pressure relief valves should be installed on both high-pressure and low-pressure sides of the compressors, between the cylinder and the discharge stop valve. These valves should be set to open at given pressures. In case compressor is started while the stop valves are closed, or in case the stop valves are closed while the compressor is running, the pressure relief valves automatically open and discharge into the low pressure system.

The loss of condenser water or the accumulation of foul gases in the condenser may cause dangerously excessive pressures. These excessive pressures would operate the pressure relief valves, but the addition of a device called "Pressure Limiting Device" avoids the necessity for the action of the pressure relief valves. The Pressure Limiting Device, is a pressure controlled switch for automatically stopping the operation of the ammonia compressors, at a lower pressure than the setting of the high pressure relief valves.

Care should be used in the selection of lubricating oil for ammonia compressors. It should be capable of withstanding a high flash test, and at the same time flow freely at a low temperature. An oil of low flash point would be dangerous on account of the high temperatures due to compression. An oil that congeals at low temperatures would, of course, be unfit for use.

Main bearings, cranks, and crossheads of the compressor and any other moving parts of machinery lubricated by the gravity system, should be so designed that failure of the oil pump to pump oil to the reservoir through breakage of the pump belt or other cause would be made known by the ringing of an alarm.

Automatic devices may fail or an accident may occur which the automatic devices cannot prevent. For this reason, it is necessary to have a manual control at a point easily accessible from outside of the machinery room, preferably at the door of the machinery room. This device called a "Remote Control Switch," is used only in case of serious fire or accident. Prominently placed, easily read signs should be hung to direct attention to the location of this switch.

Ammonia level gauge glasses should have automatic closing gauge cocks and should be protected by wire mesh or slotted steel casings.

Rotating parts of all machinery should be guarded by railings or gratings.

Explosions occur in air compressor receivers usually because of the superheating of oil and of impurities in the air by the heat of compression. The ignited mixture of oil and dust is carried over into the receiver from the compressor and explodes the oil already in the receiver.

To guard against such an explosion the receiver should be made to comply with the standards of the American Society of Mechanical Engineers. A pressure relief valve should be installed, set and locked.

The air should be taken from outside the building at a high point, away from gasoline or other fumes. An air filter should be attached to the intake to prevent dust from entering the intake pipe.

Pressure shells such as condensers, receivers, intercoolers, separators, brine coolers, evaporators, or any other vessel under pressure, should be equipped with pressure relief valves of the type already described. These relief valves should discharge into the air above the roof, or into that part of the low-pressure side of the system protected by the ammonia mixer.

In extreme conditions of fire or of breakage, it is sometimes necessary to discharge all of the ammonia in the system into the sewer. It would be a dangerous thing to discharge the ammonia without thoroughly mixing it with water.

If the condensing water is cut off from the condensers through failure of pumps or other causes, the ammonia pressure in the condenser will become excessive. It is important that the failure of condenser water should be made known to the engineer in charge immediately. For this purpose a condenser water alarm, sounding through a klaxon, or bell, should be installed.

Throughout the machinery rooms, a system of pipe coloring should be employed to distinguish from one another the different purposes of the pipes. Arrows painted on the pipes would show the direction of flow. The pipes may be painted as follows:

High-pressure ammonia pipes, red.
Low-pressure ammonia pipes, black.
Brine pipes, black with colored bands.
Water pipes, green.
Electric conduits, white.

This avoids delay in emergencies and is convenient at all times. All valves should be labelled with metal tags to indicate what they control.

Fire extinguishers of the carbon tetrachloride type and of the carbon dioxide type, both approved by the National Board of Fire Underwriters, should be installed in the machinery room and other places where there is electrical machinery.

Carbon tetra-chloride is a non-conductor of electricity. It does not freeze but gives off large quantities of irritating and suffocating fumes when it comes in contact with heated surfaces or burning material. Certain types of gas masks are effective in protecting against these fumes and should always be worn when carbon tetra-chloride extinguishers are used in confined spaces.

Carbon dioxide extinguishers consisting of portable cylinders with appropriate hose and nozzle fittings are now available. Carbon dioxide gas is a non-conductor of electricity, does not freeze and is a very effective extinguishing medium for oil fires or fires in electrical equipment. It is necessary to use a non-conducting extinguishing medium because of the danger of electric current following the stream and killing or injuring the person using the extinguisher. The use of conducting fluids in extinguishing fires in close proximity to energized conductors might cause short circuits which otherwise would not occur.

Cabinets containing wrenches, hammers, screwdriver, and other tools that will suggest themselves, and a medical cabinet containing bandaging materials and antiseptics should be installed in the machinery room. The tool cabinet should be covered by glass doors so that all of the tools may be seen.

As much care should be given to the cleanliness and to the completeness of the first aid supplies as would be given in a hospital. The danger from infection caused by improper dressing of wounds is often more serious than the injury itself.

The precautions and devices of which I have spoken may be of no value whatsoever unless the men employed in the power plant are trained for Safety, and have been taught the necessity for care.

*Abstract of paper presented before the refrigeration section of the National Safety Congress, Chicago, Oct. 15.

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The Business Newspaper of the Refrigeration Industry

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Refrigeration Training

IN ANSWER to a definite need for more field information about electric refrigeration, schools have been organized in many of the large consuming and manufacturing centers to teach the principles of refrigeration, the operating cycles of typical machines, methods of installing and servicing them, and the allied subjects with which a capable field engineer must be familiar.

Instruction is being offered in general by three groups: 1. Manufacturers who insist that their field men must have an understanding of the workings of their particular machine in order to sell, install, and service it intelligently. 2. Established technical schools which are aware of the growth of electric refrigeration and find their curricula incomplete if it doesn't include refrigeration. 3. Independent refrigeration men who appreciate that a profitable opportunity exists for schools which offer an adequate training course in service and installation work.

Instructors in the first group are usually in the happy position of having laboratory and shop equipment at their command, and advisory engineers available.

For Their Own Men

Their course is usually offered only to men connected with their factory or distributing organizations who can make the trip to the plant for one or more weeks of intensive schooling. Courses are generally given in both domestic and commercial refrigeration, alternating on a regular schedule.

Field courses are also offered by some manufacturers. For this type of instruction, one or two men who are well versed in the operation of the refrigerator go out to central points and hold two or three-day sessions, to which nearby dealers are invited to send their service and installation men.

Refrigeration instruction in colleges and universities is on the increase. Several large universities have installed refrigerating systems for the purpose of demonstrating the principles of the subject and affording operating practice, and others have built insulated cold-rooms for sub-zero temperatures where the students may delve into the mysteries of heat transmission and humidity effects. A number of universities are also offering night school courses in refrigeration theory.

Independent Schools

Independent refrigeration institutes are doing a creditable work in training men who have little previous refrigeration experience, and are attracted by the opportunities in electric refrigeration. They are usually conducted by men who have considerable background in practical work. The courses begin with the rudiments of refrigeration, followed by treatment of the individual parts of an electric refrigerator and their functions.

Installation and service training is an important part of the course, since one of their major aims is to train men for independent service companies. Instruction is given by correspondence, class room and in the workshop. In some instances, arrangements are made for the students to go into a local shop for a short period of practical experience when the class work is finished. Other independent schools conduct their own shops.

Practical shop training is regarded as an essential phase of these courses, for unless a student is already engaged in refrigeration work, it is only in practical work that he can apply his class room training.

Desire Manufacturers' Approval

The individual standing of an independent school depends to a large extent upon the men and organizations backing it. For this reason independent schools are always desirous of securing the recommendation of large refrigeration manufacturers. The latter, appreciating the value of progressive educational projects, are usually willing to give their stamp of approval when investigation of a school indicates that it is well managed and intelligently directed.

Few books have been written on electric refrigeration. Moreover, with the rapid progress which is constantly being made, they soon become out of date. Hence, the best means to the dissemination of information are practical experience, academic training, and (we are told) ELECTRIC REERIGERATION NEWS. Refrigeration schools are performing an important service to the industry in promoting better understanding of electric refrigeration.

Serving the Service Man

TO ENCOURAGE service and installation men to exchange practical ideas on their work, the Service Men's Forum was inaugurated in the NEWS several weeks ago. Reactions to the experiment have been favorable and the editors have decided to double the award for each contribution, making it two dollars—the price of a year's subscription.

All field men are invited to send in practical service and installation methods which simplify or improve their work. Practically every field engineer has devised unique tools and discovered machine hook-ups which improve operation.

Explanation and discussion of these workable methods help everyone to a better understanding of field practice. Interchange of ideas is a valuable aid to the men who are charged with keeping refrigerators in good working order.

Ideas breed ideas, the experience of one man may inspire a happy thought in the mind of another. Send in your ideas and thereby encourage others to do the same.

GLEANINGS
FROM RECENT PERIODICALS

IN SERVING the average rural area the problem has always been and always will be how to find enough outlets for sales of electrical energy at a price that will make such sales possible and yet pay the cost of carrying the investment in the distribution extensions necessary. This has been no mean difficulty. If one considers a typical load density of four farms to the mile, it is obvious that with a cost of extension, including primary, transformer, secondary and meter installation, of say $2,000 a mile (not an unusual figure two or three years ago), the required revenue becomes so high as to render the whole scheme almost impossible from an economic standpoint. The result has been that many utilities have given up trying to solve the rural line problem.

But not all. Some have stuck to it and have brought about amazing reductions in cost. By simplification of design, by taking advantage of the strength in materials entering into the supports and conductors, by eliminating all unnecessary supervision, many companies have succeeded in building rural lines complete for from $1,000 to $1,200 a mile. In other words, costs have been cut almost in two and in many cases further than that. This, it is obvious, has completely changed the economic picture of rural electrification. The prevailing low costs of materials have also played their part.

With many prices of material entering into rural construction at almost unbelievably low figures, and with almost 90 per cent of the farms in the United States (that is, more than 5,000,000) still unelectrified, there is now presented to the electrical utilities the opportunity to meet successfully a long and vexing problem, and, incidentally, the opportunity to connect to the lines as customers and friends a group of the population among the most reliable and stable.—*Electrical World*, Oct. 17.

GREATLY increased demand for ice is predicted by the City Ice and Fuel Co. of Cleveland, as a result of rapid strides made in the developing and perfecting of air cooling and conditioning systems. In Cleveland, Chicago and Pittsburgh, the company is already doing a substantial business in supplying ice for comfort cooling of railroad cars, and this, coupled with requirements of ice for theaters, stores, churches and offices which have adopted comfort cooling, promises not only an expanding market, but a profitable one.—*Refrigerating Engineering*, October.

Carrier-York Men Show Calculations For Room Cooling Installations

By John T. Schaefer

ESTIMATION of total refrigeration loads of room coolers for small restaurants and offices can be reduced to a fairly simple process by using the formulae and data developed by C. F. Wood, chief engineer, and F. W. Graham, manager of contract sales for the Carrier-York Corp., Philadelphia.

The Carrier Atmospheric Cabinet, upon which the following methods of figuring refrigeration loads were based, was described on page 1 of the *Engineering Section* of ELECTRIC REFRIGERATION NEWS of April 8, 1931. Its constructional features are shown in Figure 1.

Refrigeration for these room coolers may be supplied by either of two methods; by direct expansion of methyl chloride or sulphur dioxide into the cabinet's cooling coil, as shown in Figure 2; or by passing through the coil, water whose temperature has been reduced by a refrigerated water cooling tank, Figure 3.

Cooling the unit by water gives somewhat higher capacities for the same room cooler than by direct expansion of the refrigerant because cold water floods the coil completely, while the refrigerant itself only partially fills the coil, allowing some of the upper tubes to contain super-heated gas with lower heat absorbing values.

The refrigerating equipment may be placed in any convenient location, with water or refrigerant supply and return pipes run to the room cooling unit. Usually the condensing unit is placed as near as is practical for the machine hum not to be objectionable.

In each installation provision is made to drain off the humidity removed in summer, and from the same pan, the overflow of water used for dehumidification in the winter.

When a building has a water cooling system large enough to provide additional refrigeration for room cooling, the cold water supply may be tapped and supplied directly to the room cooler.

In Table I are given constants for determining the hourly cooling load of *sensible heat* for rooms varying in size from 100 to 400 sq. ft. of floor area, assuming the temperature reduction is to be from 10 to 12° F. These figures were averaged from a number of installations of the Atmospheric Cabinet in offices of normal construction and heat gain, Mr. Wood points out.

They include an allowance of three changes of outside air per hour for ventilating reasons. It was assumed that windows would be kept closed, and doors opened only when people were passing into or from the office.

To find the cooling load in B.t.u. per hour of sensible heat for a given room, the number of square feet of floor area is multiplied by the constant selected from Table I.

To illustrate the use of figures in Table I, assume a 12x10-ft. office with 25 per cent of its exposed wall surface in glass. Its floor area is 120 sq. ft. Interpolating the 120 area between 100 and 200 for 25 per cent glass, the constant for this room will be 47.4. The sensible heat load will be 120x47.4, or 5,688 B.t.u. per hour.

This figure (5,688) represents the *sensible heat* only, which is the basis for determining the number of room coolers which will be needed to reduce room temperatures the desired 10 or 12° F.

The *latent heat* of condensation necessary for the dehumidification which will occur does not enter computations until the size of the condensing unit is being determined. Carrier-York engineers have found that the *latent heat* load which the refrigerating equipment must assume is approximately 30 per cent of the *sensible heat* load.

Another set of figures, Table II, gives the capacity ratings of the unit for both direct expansion and water cooling of the unit, based on the temperature difference between the refrigerating medium and the air entering the cooling cabinet.

TABLE II—ROOM COOLER RATINGS

G.P.M. of Water	2	4	6	8	10
Basic Rating	145	158	167	172	174

Basic Ratings for Both Methyl Chloride and Sulphur Dioxide are Figured at 123.

To obtain the sensible heat capacity of the room cooler in B.t.u. per hour, the basic rating is multiplied by the difference between room temperature and refrigerant temperature.

Suppose we want to know if one room cooler will handle the room assumed above, when 40° F. water is to cool the cabinet, and the air temperature is 80° F. Assume the water rate to be two gallons per minute.

From Table II, the basic rating for a water-cooled unit is 145 when the flow is two gallons per minute. The temperature difference between entering air and the refrigerating medium is (80-40) 40° F. The product of the basic rating and the temperature difference gives (145x40) 5,800 B.t.u. per hour, which is the capacity of the room cooler under these assumed conditions to remove *sensible heat*.

Comparison of the sensible heat load (5,688) of the room assumed above with the room cooler's capacity (5,800) under these particular conditions, shows that one room cooler will provide the necessary air conditioning effect.

The *total* refrigerating load imposed on the condensing unit includes the *sensible* heat and the *latent* heat (which has been approximated as 30 per cent of the sensible heat). The high side for the installation assumed above will have a total load of 5,688 plus 1,706 (30 per cent of the sensible heat load of the room), or 7,394 B.t.u. which the condensing unit must be prepared to remove every hour.

TABLE I—CONSTANTS FOR DETERMINING COOLING LOADS OF ROOMS

	Sq. Ft. Floor Area in Room			
No Roof Exposure	100	200	300	400
Glass 25% of exposed wall surface	49	41	36	34
Glass 35% of exposed wall surface	54	44	39	37
Roof Exposure				
Glass 25% of exposed wall surface	60	52	47	45
Glass 35% of exposed wall surface	65	55	50	48

Details of Carrier-York Room Cooler

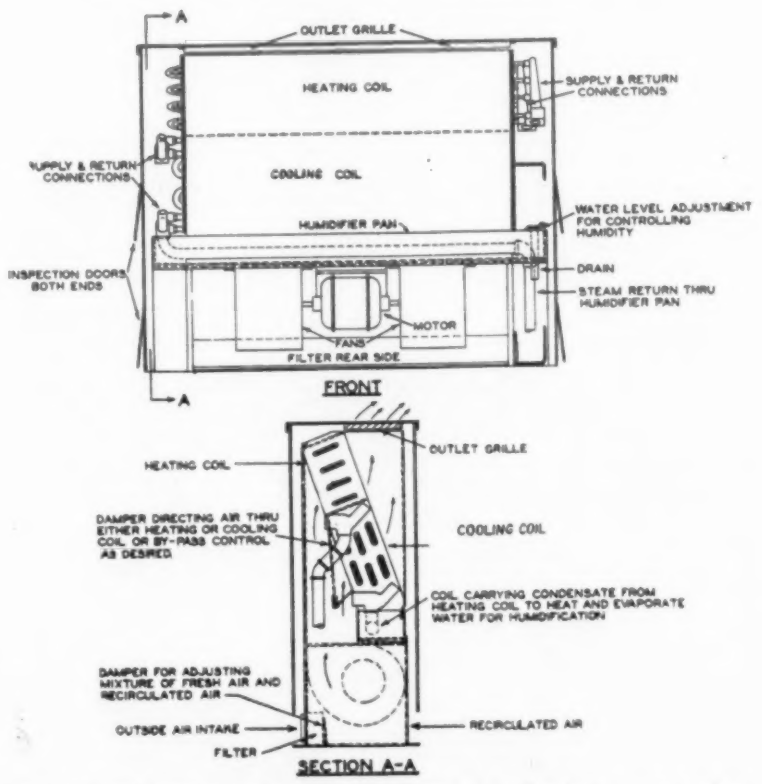


Fig. 1—Both heating and cooling are provided in Carrier's room cooler.

Room Cooler Installation Diagrams

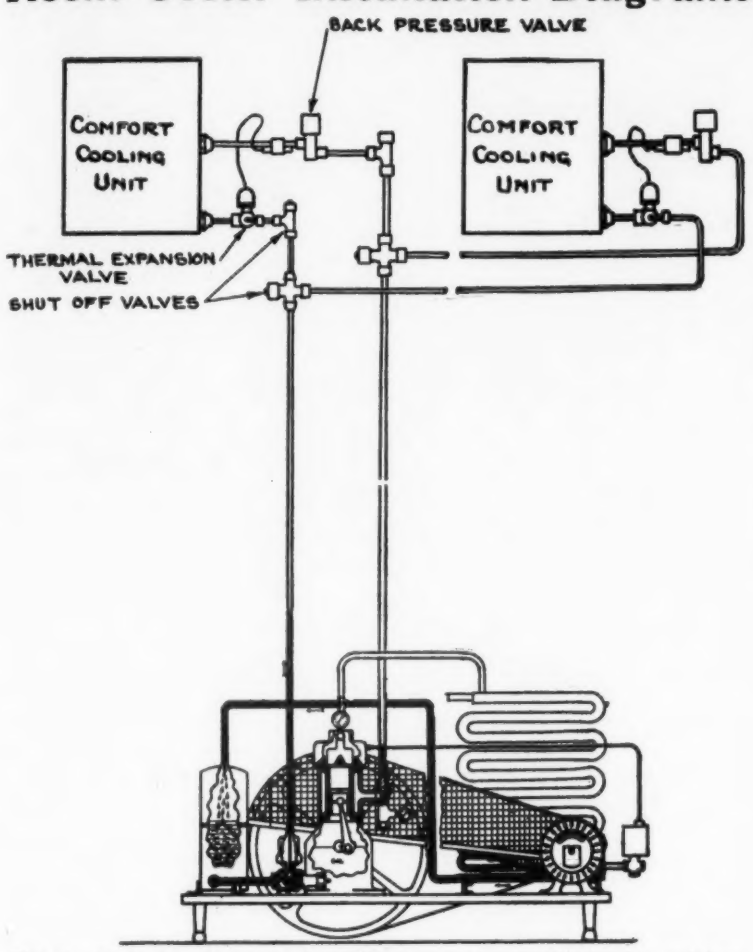


Fig. 2—Carrier's Atmospheric Cabinet may be installed with sulphur dioxide or methyl chloride condensing units, and direct expansion used.

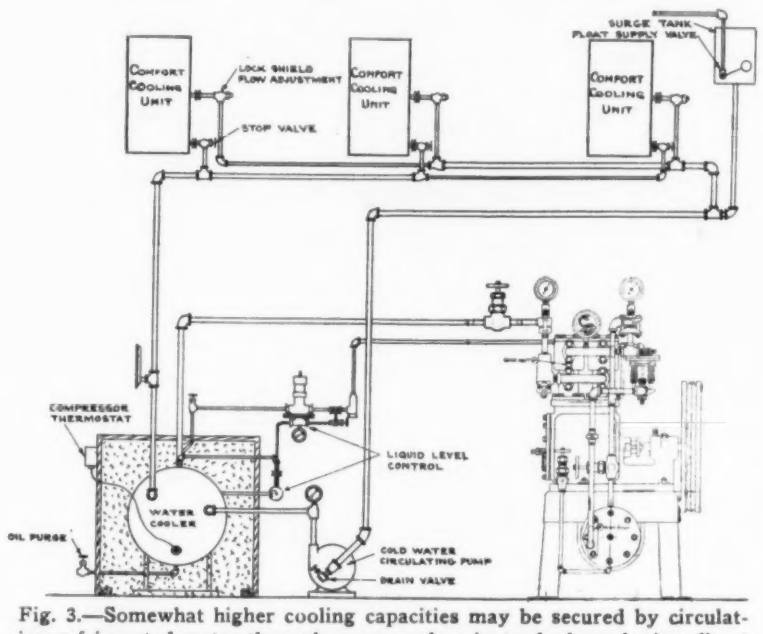
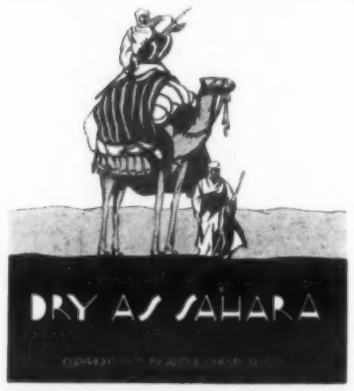


Fig. 3.—Somewhat higher cooling capacities may be secured by circulating refrigerated water through room coolers instead of employing direct expansion. See tables on page 4.

ANSUL
Sulphur Dioxide



ANHYDROUS SULPHUR
ANALYZED DIOXIDE

ANSUL CHEMICAL COMPANY
MARINETTE • WISCONSIN

ABSORPTION MACHINE IS FINDING NEW USES

By Dr. Rudolph Plank
Director, Karlsruhe Refrigeration Laboratory, Karlsruhe, Germany

IN CHEMICAL factories, low temperatures are necessary in several processes, and at the same time a great amount of exhaust heat is often available from other processes.

This makes it possible to produce refrigeration very economically by means of absorption machines.

The system was abandoned for long years, but recently Dr. Edmund Altenkirch of Berlin has introduced a series of very important improvements in the thermolynamic cycle of these machines which makes absorption refrigeration desirable.

The main of them is the multi-stage absorption machine. In a two-stage machine, one can produce practically twice as much refrigeration with the same heat consumption as in the old single stage machine. After evaporation of the ammonia in the first evaporator of a two-stage machine, it is not conducted straight to the absorber, but is absorbed by a highly concentrated water-ammonia solution, thus forming a very strong liquor.

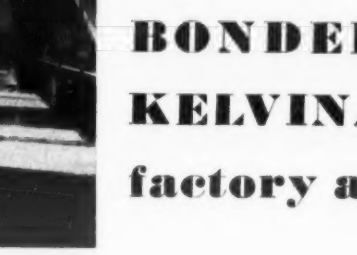
This liquor is then expanded to a lower pressure in the second evaporator, and produces here about the same amount of refrigeration as in the first evaporator. Ammonia vapors are then conducted to the absorber of the usual type.

Such new absorption machines of capacities from 300 to 400 tons of refrigeration have been recently installed by the A. Borsig Co. of Berlin in the big gas factories of Thyssen Co. in Hamborn on Rhine. There, large quantities of illuminating gas from coke ovens are cooled down to 20° F. to remove naphthaline which would deposit in the long pipe lines in winter time, thus preventing the regular flow of the gas and forming a high resistance. The refrigeration of coke oven gas was first suggested by Dr. F. Lenze, the president of Thyssen Co. at Hamborn.

BASTIAN BLESSING DESIGNS NEW REGO CUTTING TORCH

CHICAGO—The Bastian-Blessing Co., makers of Rego Welding and Cutting equipment, announces a new cutting torch, claimed to be light in weight, well balanced, and economical in operation.

The new type CC cutting torch has an overall length of 20¼ in. from base of handle to end of tip nut. It is suitable for use with fuel gases, and by changing the tip, can be made ready for use with acetylene, hydrogen, carbohydrogen, oxy-acetylene, and the liquefied petroleum gases and as butane, propane, etc., the manufacturer claims.



Apex Automatic Refrigeration Specialties

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APEX REGULATOR COMPANY
Division of
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HEINIG TRUCK BODIES USE DRY ZERO BLANKET

CHICAGO—Five inches of Dry Zero blanket insulation are used in the Heinig electrically refrigerated ice cream truck bodies, which will maintain temperatures of –15° F., according to claims made by the B. Heinig Truck Body Co.

Selected oak uprights, a staggered frame to assure even insulation distribution, poplar paneling, seasoned veneered sheathing, and galvanized sheet steel, riveted and soldered, are other features of the Heinig body construction.

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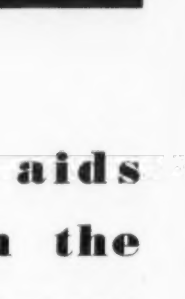

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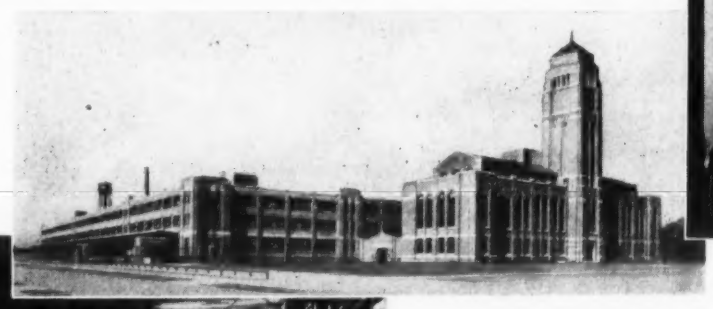
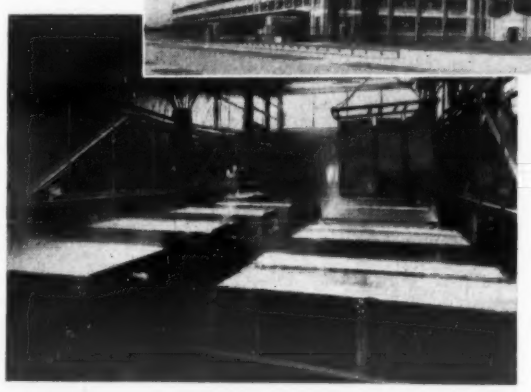
Illustrations show one of the late model Yukon Kelvinators, the huge Kelvinator plant in Detroit, and a view of the Bonderite installation in Kelvinator's Grand Rapids cabinet factory.





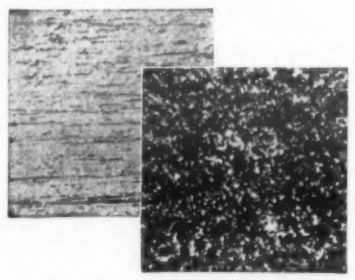
BONDERIZING aids KELVINATOR in the factory and salesrooms

FOR seventeen years Kelvinator engineers and executives have been alert to adopt any system or process that would expedite manufacture or benefit sales.

This policy resulted in the decision to BONDERIZE all Kelvinator cabinets carrying a lacquer finish.

This Parker Process that "holds paint to steel" was found to be the most efficient method available for preparing metal for the application of paint, enamel or lacquer. Installation costs are low, operating costs are low and the process is adaptable to any scale production. No skilled labor is required. The entire process is simple. safe and economical.

The salesmen found that Bonderizing, by effecting permanence of the lacquer finish, assured Kelvinator cabinets lifelong beauty and protection from rust. This they knew to be a feature tremendously appreciated by all prospective buyers of electric refrigerators.



PHOTOGRAPH (above left), of an untreated piece of cold rolled steel enlarged 100X. Note lack of uniformity of surface and the smooth areas where it is difficult for enamel to adhere.

On the right is illustrated a typical Bonderite coating enlarged 100X. Contrast this to the other and note the uniform crystalline coating which holds the enamel tenaciously.

IN THE KELVINATOR cabinet factory at Grand Rapids are a number of Bonderite tanks in which cabinets, carried on overhead cranes, are given a ten-minute bath. After a quick water rinse, upon emerging, the metal surfaces are changed to an insoluble phosphate, chemically clean and slightly absorbent. Lacquer clings smoothly upon application and is securely anchored upon drying. Bonderizing can be used economically for any iron or steel product and with any size production. Detailed information given to any manufacturer stating specific requirements.

Send for the interesting booklet—"BONDERITE"

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2197 Milwaukee Ave. Detroit, Michigan

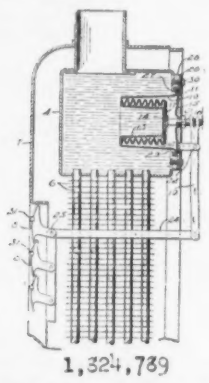
REVIEW OF LATEST PATENTS GRANTED

ISSUED SEPTEMBER 29

1,824,774. CIRCUIT CONTROL MECHANISM FOR MECHANICAL REFRIGERATING APPARATUS. Frederick R. Erbach, Detroit, Mich., assignor to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Filed Dec. 19, 1927. Serial No. 241,072. 6 Claims. (Cl. 62—4.)

1. In combination with refrigerating apparatus having electrical connections for establishing a circuit between a driving motor and a source of electrical supply, an automatically operated switch mechanism for establishing and breaking said circuit upon predetermined temperature conditions, and a second switch mechanism for controlling said circuit independently of said automatically operated switch mechanism, said last mentioned switch mechanism being manually operable to establish said circuit and including means for automatically breaking said circuit under a predetermined temperature condition.

1,824,789. THERMOSTATIC CONSTRUCTION. Lambert M. Payne, Detroit, Mich. Filed Nov. 8, 1929. Serial No. 405,599. 11 Claims. (Cl. 236—35.)



1,324,739

1. In combination, a tubular body provided with an out-turned flange at one end thereof and an inturned flange at the other end thereof, a cup-shaped member in spaced relation within said body and having its rim sealed to said inturned flange, an expansible cup-shaped metal bellows positioned between said body and said member and having its rim sealed with respect to the rim of said member and means for so horizontally supporting the same as exteriorly to expose both said body and said member to a cooling fluid while exposing a surface of said bellows to air within said body.

1,824,891. AIR CLEANING AND CONDITIONING APPARATUS. Earl Vernon Hill, Chicago, Ill. Filed Nov. 10, 1930. Serial No. 494,746. 11 Claims. (Cl. 183—24.)

1. In an air washing and humidifying apparatus, the combination of a casing member defining a washing chamber and a stationary eliminator therein, said eliminator being reversible about an axis fixed with respect to the casing so that opposite faces thereof may be alternately opposed to the incoming current of air.

1,825,022. REFRIGERATING APPARATUS. Otto M. Summers, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Dec. 31, 1927. Serial No. 244,017. 3 Claims. (Cl. 220—9.)

1. A refrigerator having an insulation space, bags of loose insulating material in said space, and additional loose insulating material in layers between the bags in said space.

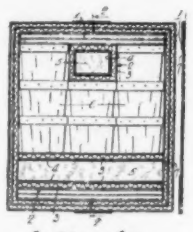
1,825,054. REFRIGERATIVE APPARATUS. George C. Cusack, West New York, N. J., assignor, by mesne assignments, to Dryice Equipment Corporation, a Corporation of Delaware. Filed Aug. 9, 1926. Serial No. 128,075. 2 Claims. (Cl. 62—91.5.)

1. A refrigerator consisting of a box of insulating material and gas tight construction open only at the top and having its top opening horizontal, an insulating cover removably closing said top and provided with a plurality of relatively small hand holes therethrough, having insulating closures, and within said box a container of carbon dioxide, of great depth as compared with its thickness, means supporting it near but above the bottom of said box to afford circulation on all sides thereof and having its top spaced apart below the cover of the box and discharging the sublimated carbon dioxide gas at a level which is a substantial distance below said cover.

1,825,065. TREATMENT AND PRESERVATION OF CUT PLANTS. Arthur B. Howell, New York, N. Y., assignor to Dryice Equipment Corporation, New York, N. Y., a Corporation of Delaware. Filed Aug. 30, 1929. Serial No. 389,609. 13 Claims. (Cl. 47—58.)

12. The herein described method of treating cut plants which consists essentially in supplying them with moisture while subjecting them to an atmosphere consisting of air containing an abnormal percentage of CO_2 gas.

1,825,068. REFRIGERATING APPARATUS, PACKAGE AND METHOD. Charles L. Jones, Pelham, N. Y., and Howard S. McIlvain, Belleville, N. J., assignors to Dryice Equipment Corporation, New York, N. Y., a Corporation of Delaware. Filed Apr. 28, 1930. Serial No. 448,053. 24 Claims. (Cl. 62—91.5.)



1,825,068

1. A package including an outer insulating container, products to be refrigerated packed therein and refrigerant means comprising relatively long narrow containers, substantially impermeable to gas, of solid carbon dioxide extending horizontally one at the bottom and one at the top thereof.

1,825,073. APPARATUS AND METHOD FOR REFRIGERATING. David H. Killeffer, Yonkers, N. Y., assignor to Dryice Equipment Corporation, New York, N. Y., a Corporation of Delaware. Filed Mar. 5, 1929. Serial No. 344,201. 15 Calims. (Cl. 62—91.5.)

1. A refrigerant container enclosing solid carbon dioxide, including outer and inner layers of cellular material and an interposed layer of asphalt.

13. A method of regulating temperature of the atmosphere in an outer insulating container of products refrigerated by solid carbon dioxide sublimating and discharging its gas therein, for circulation in refrigerant relation to said products, which method includes enclosing said solid in a container designed to be gas-tight up to a desired out flow level and to admit inflow of said atmosphere at a higher level than the out flow level, and predeterminating or adjusting the vertical distance between said levels making it greater for low temperatures and less for higher temperatures.

1,825,209. HEAT EXCHANGE DEVICE. Clarence E. Safford, Cleveland, Ohio. Filed Oct. 6, 1927. Serial No. 224,342. Renewed Aug. 25, 1931. 15 Claims. (Cl. 257—139.)

4. In a heat exchange apparatus, the combination of a pair of sides folded, bent and welded to produce parallel corrugations having closed ends, the ends of the inner portions of the corrugations being flattened and curved outwardly until they constitute parallel flanges, trough-shaped strips bridging the spaces between the flanges and attached thereto and means connecting across between said inner portions of the corrugations between the ends thereof, to stiffen the structure.

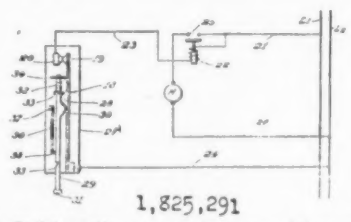
1,825,215. REFRIGERATING APPARATUS. Alfred M. Thomson, Newark, N. J., assignor to Joseph Mercadante, New York, N. Y. Filed Nov. 22, 1926. Serial No. 149,844. 8 Claims. (Cl. 62—8.)

1. In a refrigerating apparatus, the combination of a cooling chamber, a refrigeration element therein, a second chamber located in close proximity to the cooling chamber, means within said second chamber for compressing and liquefying a gasified refrigerant, fluid connections for conducting the liquefied refrigerant to said refrigeration element, and a float valve for controlling the passage of liquid refrigerant to said element, the said fluid connections including a pipe extending between the valve and the said element with most of the pipe arrangd within said second chamber, and the said pipe having a cross-section and length such that substantially all of the refrigerant passes into the refrigeration element in liquid form.

1,825,265. HEAT EXCHANGER FOR MECHANICAL REFRIGERATING UNITS. David H. Ebinger, Columbus, Ohio, assignor to The D. A. Ebinger Sanitary Mfg. Co., Columbus, Ohio, a Corporation of Ohio. Filed July 11, 1928. Serial No. 291,928. 6 Claims. (Cl. 62—141.)

1. In a heat absorption unit for liquid refrigerating systems, a refrigerant container comprising a cylindrical outer wall and an adjoining corrugated inner wall, said corrugations providing a plurality of annular liquid circulating spaces arranged in different planes, said inner walls being provided with relatively staggered longitudinally extending passages permitting of the flow of a fluid from one of said spaces to another serially, and fluid inlet and outlet connections arranged at opposite ends of said container.

1,825,291. REFRIGERATING APPARATUS. William F. Swezey, Swissvale, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Apr. 11, 1929. Serial No. 324,239. 7 Claims. (Cl. 62—4.)



1,825,291

1. Refrigerating apparatus comprising an evaporator, means for circulating a refrigerant medium through the evaporator, temperature-responsive means for controlling the operation of the refrigerant-medium-circulating means, means for rendering said temperature-responsive means temporarily ineffective and a second temperature-responsive means for rendering effective the first temperature-responsive means after a predetermined temperature has been reached in the evaporator.

1,825,356. POWER ATTACHMENT FOR ICE CREAM FREEZERS. Donald David Kohler, Amsterdam, Ohio. Filed Sept. 24, 1930. Serial No. 484,198. 3 Claims. (Cl. 74—7.)

3. A power attachment for ice cream freezers of the character described comprising a supporting structure including a pair of spaced, parallel, co-extensive beams, a platform mounted on one end portion of the beams, cross bars extending between the beams at spaced points on said beams, a pair of legs pivotally connected, at one end, to one end portion of the cross bars, and extending outwardly at an inclination therefrom for swinging adjustment in a vertical plane, braces pivotally connected, at one end, to the other end portions of the cross bars, and extending upwardly therefrom at an inclination and having a series of spaced holes in their upper end portions, means adjustably connecting the braces to the legs in a manner to support said legs in adjusted position, a horizontal shaft rotatably supported on the legs and extending outwardly from said legs, means on the platform for engagement with the freezer in a manner to retain the freezer in alignment with the shaft, means for operatively connecting the freezer to the shaft for actuation thereby, said means comprising a tubular coupling rigidly connected at one end portion of the shaft, said coupling being adapted for engagement telescopically over one end portion of the operating shaft of the freezer and having an arcuate slot in said one end portion for the passage of the actuating crank of the freezer in a manner to lock the coupling to the freezer shaft against relative rotary movement with respect to said freezer shaft.

1,825,385. APPARATUS FOR PRERIPENING OR RETARDING PERISHABLE FOOD PRODUCTS. Fred John Day, Los Angeles, Calif. Filed Dec. 17, 1928. Serial No. 326,581. 2 Claims. (Cl. 219—39.)

1. In a portable self-contained apparatus for treating perishable products in a storage enclosure, the combination of a vertically elongated casing provided at its top and bottom with air ports, electric heating elements located within said casing between the upper and lower air ports, a fan located between said heating elements and one of said ports, flexible ducts connecting with said air ports and extending outwardly therefrom and adapted to be led to the desired point of intake or discharge, thermostatic means for regulating the energizing of the heating elements in conformity with predetermined thermal conditions, and humidifying means located below the heating elements and adjacent to the lower air port.

1,825,453. COOLING TOWER. Joshua Barton Harry, Philadelphia, Pa. Filed Dec. 22, 1928. Serial No. 327,945. 5 Claims. (Cl. 261—113.)

1. In a cooling tower system, the combination of a series of drip bars having their longitudinal axes parallel, each bar having a longitudinal trough on its upper surface, and a spacer of approximately channel section, extending transversely of the longitudinal axes of the bars; the outer flange of said spacer extending downwardly therefrom and abutting the ends of said bars, the inner flange of the spacer being cut away to form spacing lugs of contour substantially that of the section of the troughs, and fitting therein adjacent the said ends of the bars.

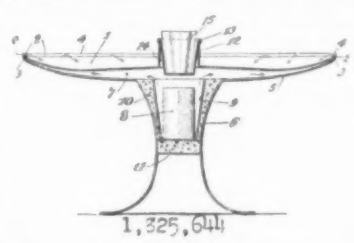
1,825,498. UNIT FOR HEATING, COOLING, AND VENTILATING SYSTEM. Selmer F. Wogan, Montevideo, Minn. Filed Apr. 22, 1929. Serial No. 357,308. 3 Claims. (Cl. 257—245.)

1. A unit for heating, cooling and ventilating systems comprising a casing having upper and lower alined openings in each end thereof, a conduit diagonally supported within the casing adjacent each end and partitions dividing each conduit into two series of passages, one series being arranged at right angles to the other, whereby one series communicates with the upper opening, and the other series communicates with the lower opening of the casing for the purpose specified.

1,825,643. REFRIGERATING APPARATUS AND METHOD. James W. Martin, Jr., Yonkers, N. Y., assignor, by mesne assignments, to Dryice Equipment Corporation, New York, N. Y., a Corporation of Delaware. Filed Oct. 19, 1926. Serial No. 142,550. Renewed May 11, 1931. 12 Claims. (Cl. 62—170.)

1. The method of refrigeration which consists in enclosing within a chamber, with the material to be refrigerated, and adjacent the upper part thereof, a quantity of separated masses of carbon dioxide which has been previously frozen and is in solidified mass form, and which on absorption of heat through the insulation passes directly from a solid to a gas much heavier than air; and permitting all the gas to escape into said enclosing chamber, as formed, to substantially include all of said material in the path of such downflow, and providing for upflow of displaced air and warm gas between said material and the outer shell of the chamber, and permitting inflow thereof above said material so as to maintain a closed circuit of thermo circulation.

1,825,644. REFRIGERATIVE DISH OR UTENSIL. James W. Martin, Jr., Yonkers, N. Y., assignor, by mesne assignments, to Dryice Equipment Corporation, New York,



1,825,644

N. Y., a Corporation of Delaware. Filed Nov. 4, 1926. Serial No. 146,181. Renewed Dec. 9, 1929. 10 Claims. (Cl. 62—91.5)

1. A metal dish adapted to be cooled by frozen carbon dioxide comprising a compartment for material to be cooled, a second compartment for holding said frozen carbon dioxide, and means whereby the generated gas from the frozen carbon dioxide in said second compartment overflows into said first compartment, the generated gas being in operative relation to the back surface of the dish, whereby frost is maintained on exposed surfaces of the dish.

1,825,645. METHOD OF TREATMENT OF MILK AND OTHER LIQUIDS. James W. Martin, Jr., Yonkers, N. Y., assignor to Dryice Equipment Corporation, New York, N. Y., a Corporation of Delaware. Filed Jan. 21, 1927. Serial No. 162,588. 3 Claims. (Cl. 99—8.)

1. The method which includes milking and discharging the milk, as drawn from the cow, into a vessel while exteriorly refrigerating, insulating and protecting the same by providing solid carbon dioxide in heat absorbing relation to the receiving vessel and by retaining the resultant cold carbon dioxide gas as an enveloping atmosphere for the vessel.

1,825,646. METHOD OF CRYSTALLIZATION. James W. Martin, Jr., Yonkers, N. Y., assignor, by mesne assignments, to Dryice Equipment Corporation, New York, N. Y., a Corporation of Delaware. Filed Nov. 22, 1927. Serial No. 235,041. 5 Claims. (Cl. 127—58.)

1. The method of accelerating crystallization and making small crystals, which consists in liberating freshly sublimated, intensely cold carbon dioxide gas in a solution of crystallizable constituency and concentration at extremely low temperature, within said solution to produce simultaneous agitation and freezing therein.

1,825,647. STORAGE, TRANSPORTATION AND DISTRIBUTION OF FROZEN CARBON DIOXIDE. James W. Martin, Jr., Yonkers, N. Y., assignor, by mesne assignments, to Dryice Equipment Corporation, New York, N. Y., a Corporation of Delaware. Filed Nov. 22, 1927. Serial No. 235,044. 10 Claims. (Cl. 62—91.5.)

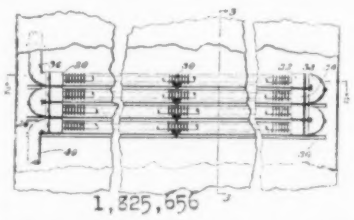
5. A storage or transportation package, comprising an insulating container having superposed layers of packages therein, each package comprising a block of frozen carbon dioxide enclosed in a paper bag so as to prevent inlet of air, while permitting escape of the carbon dioxide gas as the block sublimates.

ISSUED OCTOBER 6

85,278. BAFFLE SHIELD. Howard E. Blood, Detroit, Mich., assignor to Norge Corporation, Detroit, Mich., a Corporation of Michigan. Filed Dec. 26, 1930. Serial No. 38,126. Term of patent 3½ years.

The ornamental design for a baffle shield, or similar article.

1,825,656. HEAT EXCHANGE APPARATUS AND METHOD OF OPERATING THE SAME. Gardner C. Derry, Sharon, Mass., assignor to B. F. Sturtevant Company, Hyde Park, Mass., a Corporation of Massachusetts. Filed July 21, 1928. Serial No. 294,484. 21 Claims. (Cl. 257—230.)



1,825,656

1. A heat exchange apparatus comprising a plurality of sections each having a front header and a rear header and tubes connecting the headers, the headers having diagonally opposed openings for inlet and outlet whereby the paths through all tubes of the section are of substantially equal length, and a connection between the inlet opening of one section and the outlet opening of another section.

1,825,664. REFRIGERATING APPARATUS. Harry B. Hull and George F. Hofferberth, Dayton, Ohio, assignors to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed Feb. 29, 1928. Serial No. 257,990. 7 Claims. (Cl. 62—116.)

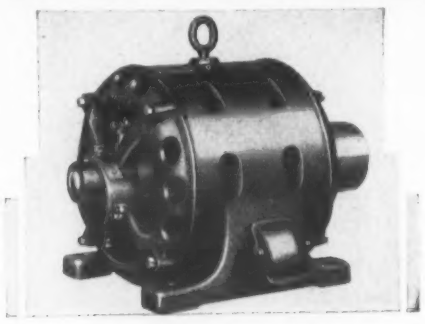
6. Refrigerating apparatus comprising in combination, a condensing element and an evaporating element connected in closed circuit relation, the evaporating element being above the level of the condensing element and including a pair of coils of tubing connected in series and disposed at different levels, the coils being so arranged that refrigerant flows upward through the higher coil and then upward through the lower coil.

1,825,665. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed June 30, 1928. Serial No. 289,548. 2 Claims. (Cl. 62—116.)

1. A water cooler comprising a water cooling compartment adapted to receive a demijohn, a food compartment in alignment below said water cooling compartment, an automatic refrigerant expansion valve, an

(Continued on Page 7, Column 1)

THEY KEEP A-RUNNING



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THE AETNA RUBBER CO.

ASHTABULA, OHIO

IN FIELD OF ELECTRIC REFRIGERATION

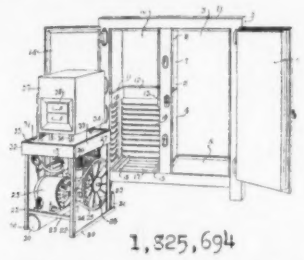
(Continued from Page 6, Column 5)

expansion coil with its portion adjacent said expansion valve in thermal contact with said foot compartment and with another portion beyond said first named portion in contact with said water cooling compartment.

1,825,669. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Original application filed Oct. 3, 1923. Serial No. 666,257. Divided and this application filed Dec. 15, 1927. Serial No. 240,285. 6 Claims. (Cl. 62—169.1.)

1. An iceless cooling unit having a pair of oppositely extensible members for aiding in fastening said unit within a refrigerator.

1,825,694. REFRIGERATOR. Edward A. Hobart, Troy, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed Mar. 25, 1926. Serial No. 97,430. 5 Claims. (Cl. 62—116.)



1,825,694

1. A refrigerator comprising a cabinet including walls having insulated and non-insulated portions, and a unitary structure comprising an insulating wall cooperating with said insulating portions adjacent the edge thereof for dividing said cabinet walls into a compartment, all of the walls of which are insulated, and a compartment in which all of the outside walls are non-insulated, said unitary structure also including a heat absorbing element disposed on one side of said insulating wall and within the insulated compartment and including a heat dissipating element disposed on the other side of said insulating wall and within the other of said compartments, a part of the insulating wall portion of the cabinet being movable and said other compartment having an opening, said unitary structure being movable from or into the cabinet in planes substantially parallel with said insulating wall when said part is moved.

1,825,698. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Sept. 30, 1927. Serial No. 223,076. 5 Claims. (Cl. 62—126.)

5. An evaporator for refrigerating apparatus including a header forming a reservoir for liquid refrigerant, a conduit means connected to the header and disposed entirely below the liquid level thereof and in a substantially horizontal plane at one side of the header, and a compartment for an ice-making container supported on the upper side of the tube.

1,825,703. REFRIGERATING APPARATUS. John T. Rauen, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Sept. 28, 1927. Serial No. 222,663. 2 Claims. (Cl. 61—1.)

2. In combination, a refrigerator having a cooling compartment, a cooling unit in said compartment, an ice cube tray sleeve structure in said cooling unit, a flange secured to said sleeve structure, a cover plate adjacent said cooling unit provided with an ice tray opening overlapping said flange, and a spring catch and a slotted pivot member for removably securing said cover plate to said refrigerator.

1,825,707. METHOD OF ADSORBING A GAS IN A SOLID ADSORBENT. Fred H. Wagner, Jr., Baltimore, Md., assignor to The Silica Gel Corporation, Baltimore, Md., a Corporation of Maryland. Filed May 24, 1927. Serial No. 193,932. 5 Claims. (Cl. 183—4.)

1. The method of causing a required quantity of pulverized material per unit of time to gravitate counter to an upward flow of gas capable of lifting in suspension a fixed quantity of said material at a definite velocity of flow, comprising delivering into the upper end of the gas flow a quantity of material per unit of time equivalent to the sum of said required and known quantities and continuously separating the fixed quantity as it is lifted by said gas, and returning it to the upper end of the gas flow.

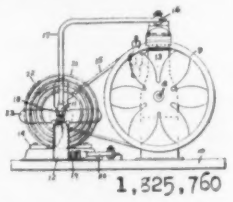
1,825,731. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed Aug. 25, 1928. Serial No. 302,043. 22 Claims. (Cl. 62—116.)

18. In a self contained mechanical refrigerator having a cabinet having superposed compartments open at one side; a unitary mechanical refrigerating apparatus including a frame entirely supporting an evaporator and machinery in different elevations for association with different compartments, said apparatus being insertible laterally into said cabinet, and a movable closure for closing the opening leading to the refrigerated compartment.

1,825,748. REFRIGERATING APPARATUS. John A. Macready and Harry H. Hodgson, Dayton, Ohio, assignors to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed June 30, 1928. Serial No. 289,422. 5 Claims. (Cl. 62—141.)

1. A water cooler comprising a water cooling compartment, a food storage compartment in alignment with said water cooling compartment and having a common dividing wall, an evaporator in one of said compartments in contact with said wall.

1,825,760. CONDENSER FOR REFRIGERATING APPARATUS. Charles C. Spreen, Detroit, Mich., assignor to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Filed June 3, 1927. Serial No. 196,300. 5 Claims. (Cl. 257—39.)



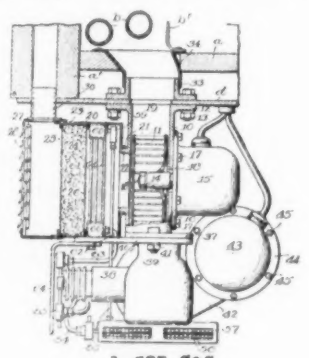
1,825,760

1. An air cooled refrigerant condenser comprising a vertical extending header for distributing gaseous refrigerant and storing condensed refrigerant, and the condenser tube sections each having their ends communicating with and secured on opposite sides of and to the upper portion of said header, said tube sections being arranged to permit compressed refrigerant to flow therein from said header and to flow by gravity back into said header when condensed.

1,825,801. REFRIGERATING APPARATUS. Jesse G. King and Harry B. Hull, Dayton, Ohio, assignors, by mesne assignments, to General Motors Research Corporation, Dayton, Ohio, a Corporation of Delaware. Filed May 7, 1923. Serial No. 637,136. 13 Claims. (Cl. 62—116.)

1. In refrigerating apparatus, a unitary structure comprising in combination a frame having end walls, a compressor supported by the frame, a draft tube attached to one end wall, a condenser located in the draft tube and supported by the frame and connected with the high-pressure side of the compressor, a motor mounted on the opposite end wall, a rotatable blower located in the draft tube, and means extending through the frame for connecting the motor and blower.

1,825,808. AIR CONDITIONING APPARATUS. Lee W. Melcher, Winnetka, Ill. Filed Sept. 2, 1930. Serial No. 479,227. 7 Claims. (Cl. 62—117.)



1,825,808

1. In an air conditioning apparatus of the character described, the combination of a supporting structure, an air filter supported on the structure, a motor-driven fan also supported on the structure and operative to force air through the filter and to discharge the filtered air under pressure, and a refrigerating unit connected detachably to the supporting structure and comprising a compressor and a refrigerant line positioned to cool the air forced through the filter by the fan and adapted to be removed from its operative position upon detachment of the unit from the supporting structure.

1,825,813. AIR TEMPERING AND HUMIDIFYING UNIT. George W. Nitchy, Kansas City, Mo. Filed Jan. 14, 1931. Serial No. 508,664. 8 Claims. (Cl. 257—9.)

1. Means for producing a forced air circulation of tempered and humidifying air in a chamber including a cabinet within the chamber and an air tempering assemblage within the cabinet; an air intake at or near the floor level of the chamber in communication with the air tempering assembly and a fan operative to remove air from the floor of the chamber and suck said air through the air tempering assembly and thence force said tempered air upwardly to the upper portion of the chamber and means connecting to said cabinet to receive said tempered air and adjusted to discharge said air throughout the upper portions of the chamber; and a humidifier associated with the cabinet intermediate the fan and said discharging means; said humidifier comprising two vertical compartments separated by a division wall and a movable baffle; a spray in one compartment for adding moisture to the air after tempering, said baffle serving upon adjustment to divert measured quantities of the circulated tempered air to enter either or both of said compartments and an air mixing chamber above the compartments delivering into the air discharging means.

1,825,870. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed Apr. 30, 1930. Serial No. 448,581. 15 Claims. (Cl. 62—116.)

1. Refrigerating apparatus comprising in combination a cabinet having a door opening in a wall thereof and an opening in a second wall, closure means for said second opening, a refrigerating element within said cabinet, and a refrigerant circulating element depending from and secured to said closure means, said closure means and said circulating element being removable from said cabinet through said door opening.

1,825,916. ICE TRAY FOR ELECTRIC REFRIGERATORS. Hugo Mock, New York, N. Y. Filed Nov. 19, 1929. Serial No. 408,217. 3 Claims. (Cl. 62—108.5.)

1,825,916

1. In an ice tray for electric refrigerators, a tray, a cover fitting said tray, a series of intersecting plates attached to the underside of said cover and contacting with the bottom of the tray, the top of said cover having its surface beneath the top edge of the tray, and a complete marginal flange on said tray encircling the edges of the tray.

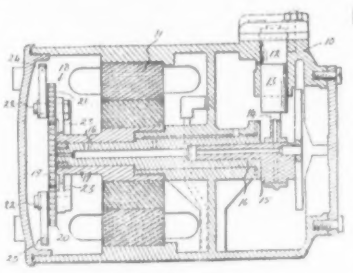
1,825,918. SHAFT SEAL. Frank Desnoyers Peltier and Elmer Widerborg, Evansville, Ind., assignors, by mesne assignments, to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed Feb. 8, 1927. Serial No. 166,656. 7 Claims. (Cl. 286—11.)

1. A shaft seal comprising a spool adapted to fit snugly to the shaft to rotate therewith and having an enlarged end, a bellows hermetically sealed to said end and having a given mean effective diameter, a bearing ring surrounding said spool and hermetically sealed to said bellows, a bearing surface adjacent the bearing surface of said ring, said mean effective diameter being of greater dimension than the mean effective diameter of the bearing surface of the bearing ring and a compression spring between said end and bearing ring.

1,826,009. ICE CREAM DIPPER. Edward J. Martineau, Seattle, Wash. Filed June 14, 1930. Serial No. 461,180. 2 Claims. (Cl. 107—48.)

1. An ice cream dipper comprising a cup member, an ejector plate, ribs formed on the bottom of said plate, and means for reciprocating and rotating the plate simultaneously in the cup member whereby the ribs on said ejector plate will cause the plate to clear the ice cream upon continued rotation of said plate after ice cream has filled a container.

1,826,172. POWER TRANSMITTING DEVICE. Harold A. Greenwald, Detroit, Mich., assignor to Thomas C. Whitehead, Detroit, Mich. Filed Sept. 8, 1930. Serial No. 480,561. 3 Claims. (Cl. 74—34.)



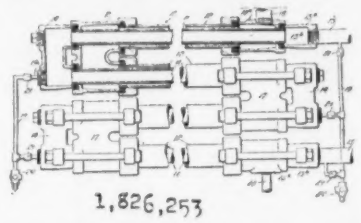
1,826,172

1. An article of manufacture comprising a housing of substantially tubular formation having a transversely extending web provided with a tubular portion constituting a bearing, a compressor shaft journaled in the bearing, a split phase motor within the housing and having a rotor hub rotatable freely on said shaft and substantially abutting the bearing, and means substantially free from friction for transmitting motion positively from the rotor hub to said shaft at a one to one ratio after the rotor hub has accelerated from zero speed to a predetermined speed less than the normal running speed thereof, comprising only a sun gear fixed directly to said shaft and rotatable planet gears carried by the rotor hub and meshing with the sun gear, said planet gears being individually unbalanced but arranged symmetrically with respect to the axis of the shaft so that the gearing as a whole is always in balance.

1,826,212. ROTARY SPRING STUFFING BOX. Ernest Gremminger, Mill Valley, Calif. Filed May 6, 1929. Serial No. 360,901. 9 Claims. (Cl. 286—11.)

1. The combination with a shaft, of a housing encircling said shaft and having an inwardly-extending flange, a cup-shaped member slidably mounted within said housing and rotatable on the flange, yielding means for keeping the cup seated on the flange and a diaphragm sealed to the shaft and to the cup.

1,826,253. LIQUID COOLING APPARATUS. Henry H. Marshall, Highland Park, N. J., assignor to Brunswick-Kroeschell Company, New Brunswick, N. J., a Corporation of New Jersey. Filed June 25, 1930. Serial No. 463,677. 5 Claims. (Cl. 62—1.)



1,826,253

1. In liquid cooling apparatus including a tube to conduct the liquid to be cooled through a refrigerant container the combination of said tube and means for preventing damage to the apparatus by the freezing of the liquid in the tube, including chambers at the inlet and outlet ends of the tube and outside of the refrigerant container to accommodate the liquid forced out of the ends of said tube.

1,826,307 REGULATABLE BELLOWS MECHANISM OF REFRIGERATION SYSTEMS. Patterson Farmer, Detroit, Mich. Filed Aug. 28, 1929. Serial No. 388,905. 7 Claims. (Cl. 297—8.)

7. In combination with a pair of terminally connected bellows members, a terminally apertured surrounding shell wherein said bellows members are located and with an adjacent wall portion whereof one end of one of said bellows members is connected, thereby isolating the space thus enclosed from the remainder of the interior portion of said shell, and means operable against the end of the bellows member first above mentioned whereby the degree of possible response by it to transmitted thermal variations from a point exterior of said shell may be regulatably varied.

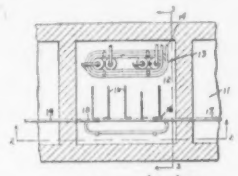
1,826,308. REFRIGERATOR Jonathan P. B. Fiske, Detroit, Mich., assignor, by mesne assignments, to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Filed Mar. 14, 1921. Serial No. 452,015. 5 Claims. (Cl. 62—95.)

5. A refrigerant evaporating unit comprising elongated and horizontally disposed refrigerant distributing means arranged in different horizontal planes in substantially parallel relation, a pair of groups of refrigerant distributing ducts connected between the upper and lower means, each of such groups of ducts being connected to the upper means longitudinally thereof and projecting downwardly in continuous substantially parallel vertical planes thence inwardly adjacent the opposite ends of the ducts, said ends there communicating with the lower means longitudinally of the latter, and a freezing tray disposed in the region between the groups of ducts for exchanging heat therewith.

1,826,339. MECHANICAL REFRIGERATING APPARATUS. Richard O. Ashton, Detroit, Mich., assignor to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Filed July 18, 1927. Serial No. 206,469. 2 Claims. (Cl. 62—101.)

1. In a refrigerating apparatus the combination with an evaporator associated in circuit with refrigerant compressing and condensing means, of a brine circulating system comprising a closed container within said evaporator and a circuitous conduit, said container having a removable end through which the open ends of said conduit extend.

1,826,345. FLUID COOLER. Frederick R. Erbach, Detroit, Mich., assignor to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Filed Apr. 11, 1927. Serial No. 182,650. 3 Claims. (Cl. 62—95.)



1,826,345

2. A refrigerator unit for refrigerating soft drink fluid required to be maintained at a temperature higher than freezing, comprising: a cabinet having a refrigerated compartment containing a heat transfer liquid, container means for the liquid to be refrigerated located in said compartment, refrigerant expander means located in said compartment at a distance from said container means, and fin means carried by one of said means and extending outwardly therefrom into the space between said container means and said expander means adjacent the other of said means.

(Concluded in Next Issue)

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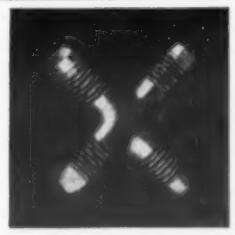

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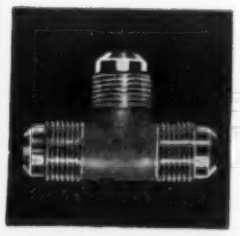

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